The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 747.—Vol. XIX.] LONDON, SATURDAY, DECEMBER 15, 1849. [Price 6d.

Contract for Pig-Iron.

DEPARTMENT OF THE STOREKEEPER-GENERAL OF THE NAVY, Somerset-place, December 11, 1849.

THE COMMISSIONERS FOR EXECUTING THE OFFICE OF LORD HIGH ADMIRAL OF THE UNITED KINGDOM OF GREAT BRITAIN AND IRELAND do hereby give Notice, that, on Thursday, the 27th inst., at One o'clock, they will be ready to TREAT with such persons as may be willing to CONTRACT for SUPPLYING her Majesty's Dockyards at Woolwich, Chatham, and Portsmouth, with

SOFT MELTING PIG-IRON.

A distribution of the iron, and a form of the tender, may be seen at the said office. No tender will be received after One o'clock, on the day of treaty, nor any noticed, unless the party attends, or an agent for him, duly authorised in writing.

Every tender must be addressed to the Secretary of the Admiralty, and bear in the left-hand corner the words, "Tender for Iron," and must also be delivered at Somerset-place, accompanied by a letter, signed by a responsible person, engaging to become bound with the person tendering, in the sum of £200, for the due performance of the contract.

Contract for Copper.

DEPARTMENT OF THE STOREKEEPER-GENERAL OF THE NAVY, Somerset-place, December 13, 1849.

THE COMMISSIONERS FOR EXECUTING THE OFFICE OF LORD HIGH ADMIRAL OF THE UNITED KINGDOM OF GREAT BRITAIN AND IRELAND do hereby give Notice, that, on Thursday, the 27th inst., at One o'clock, they will be ready to TREAT with such persons as may be willing to CONTRACT for SUPPLYING Her Majesty's Dockyard at Chatham with

THREE HUNDRED AND FIFTY TONS OF ENGLISH TOUGH CAKE COPPER.

150 tons to be delivered by the 31st January, and the remainder by 28th February next.

A form of the tender may be seen at the said office. No tender will be received after One o'clock, on the day of treaty, nor any noticed, unless the party attends, or an agent for him, duly authorised in writing.

Every tender must be addressed to the Secretary of the Admiralty, and bear in the left-hand corner the words "Tender for Copper," and must also be delivered at Somerset-place, accompanied by a letter, signed by two responsible persons, engaging to become bound, with the person tendering, in the sum of £5000, for the due performance of the contract.

Greenwich Hospital—Sale of Lead Ore.

THE COMMISSIONERS OF GREENWICH HOSPITAL will RECEIVE TENDERS for the PURCHASE of

ONE THOUSAND THREE HUNDRED AND THIRTY BINGS OF LEAD ORE,

at the Low Byer Inn, ALSTON, up to One o'clock in the afternoon of Thursday, the 27th day of December, 1849.—Samples of the ores will be forwarded to any parties wishing to purchase, who may not appoint agents to examine them, on application to Mr. Paull, Alston, Cumberland; and conditions of sale may be had on application to Mr. Grey, at the Greenwich Hospital Office, Dilston, Newcastle-on-Tyne.

SALE OF SILVER ORES.—NOTICE TO PURCHASERS. A QUANTITY of SILVER ORES will BE OFFERED FOR SALE at the CAMBORNE CONSOLS MINES in the course of a fortnight, which will be followed by monthly or bi-monthly sales; persons, therefore, desirous of becoming purchasers are requested to apply to Mr. F. Daniell, on the mines, when samples of the ores, and further particulars, will be forwarded. (Signed) H. L. T. VON USTER, Secretary.
29, Poultry, London, Dec. 5, 1849.

ATMOSPHERIC AND LOCOMOTIVE ENGINES FOR SALE.

MR. STARLING is instructed by the Directors of the LONDON AND BRIGHTON RAILWAY COMPANY to Dispose of those HIGHLY-FINISHED ENGINES, by Messrs. MAUDSLY & Co., lately used on the ATMOSPHERIC RAILWAY.

Mr. S. has also for disposal several new and second-hand SIX and FOUR-WHEELED LOCOMOTIVES—particulars on application at his office, 13, Change-alley.
London, November 14, 1849.

FOR SALE, BY PRIVATE CONTRACT, a CURRENT-GOING FIRE-BRICK MANUFACTORY, in the county of DURHAM, situate in the neighbourhood of the most extensive collieries, and connected by railway with four shipping ports. The quality of the clay (which is held at a moderate rent, under lease for a long term, and of which the quantity is almost inexhaustible) can be proved by various testimonials to be first-rate for foundry purposes, gas retorts, &c.

In addition to the manufacture of Bricks, the works are laid out for that of Sanitary Pipes, and of other articles of Fire-Clay. There are in them an ENGINE of 16-horse power, and a MACHINE for the MAKING of SANITARY PIPES.

Under judicious management, these works would be found an eligible investment, and a profit of £600 to £800 a-year might be realised.

Applications, addressed to "T. C.," care of Messrs. Castle and Lamb, Bull-head-court, Newgate-street, London, will meet with immediate attention.

GLAMORGANSHIRE, SOUTH WALES.

TO BE SOLD, BY PRIVATE CONTRACT, the valuable FARMING and MINERAL FREEHOLD PROPERTY, called GELLYDOCHLITHE, in the parish of CADOXTON juxta NEATH, containing about 150 acres, upon which is situate a new and excellent RESIDENCE, well adapted for a gentleman's family, together with convenient and extensive OFFICES and FARM BUILDINGS, in a thoroughly tenantable state of repair. The late proprietor having recently expended upwards of £2000 in draining, dressing, and fencing the land, and rebuilding the house and premises, the greater part of the farm is in so high a state of cultivation as to yield an immediate profitable return without further expenditure. There are about FORTY ACRES of PLANTATION and WOOD LAND, which are to be taken by the purchaser at a VALUATION; and a RIGHT of PASTURE exists over an adjacent extensive COMMON.

This desirable property is situate on a gentle eminence, overlooking a most picturesque and well-wooded valley, through which flows the River Dylais (a beautiful rocky stream, abounding with trout), which, with a contributory stream, forms an angular boundary to the property, which is well stocked with game.

Being situate 7 miles from the thriving seaport town of Neath, through which the South Wales Railway passes; 5 miles from the Vale of Neath Railway, and within 3 miles of Ystradgunlais, and of the Ystalyfera, Ynisceedwin, and other important works in the Swansea Valley, great accommodation is afforded to the farmer; whilst to the mineral speculator those advantages are of still greater importance; which, added to the circumstance of a branch line of railway, passing near the property, being in contemplation, and of the Neath and Swansea Canals being within a short distance, an opportunity rarely to be met with offers for investment—its mineral productions consisting of veins of the well-known Anthracite Coal, lying near and within the north crop of the Great South Wales Mineral Basin, and also of numerous seams of Ironstone.

For further particulars apply to Richard Pidcock, Esq., solicitor, Woolwich.

IMPORTANT TO CAPITALISTS.

VALUABLE SLATE VEIN IN THE MARKET.—The Proprietor of a valuable SLATE VEIN, or BED, covering an area of 63 acres, one-fourth of a mile in width, and rising to an altitude of fully 900 feet (the property of which is freehold), is desirous of obtaining a PURCHASER for the SAME, who will be allowed advantageous terms, with an assured certainty of ample returns for the needful expenditure required for carrying on extensive operations; and which, from the nature of the slate formation—stratum rising over stratum—ample space (with a deep fall) for rubbish deposit, free drainage, dispensing with the usual adjunct machinery, will not necessarily reach a tenth-part of the average working outlay of the generality of slate quarries. The Slate Vein, to which attention is drawn in this advertisement, is situated on the margin of a navigable lake, in Carnarvonshire, North Wales, within six miles (four of which is the post-road) of an excellent shipping port.

Carnarvonshire is noted as the great emporium of the slate trade, which affords constant and lucrative employment to thousands, at the same time enriching the proprietors.

The surveys of three eminent engineers have been followed up by reports of a highly satisfactory character as to the quality and quantity of this eligible slate formation, and may be had, with a view of the plan and sections, on application to Griffith Davies, Esq., Guardian Insurance Office, London; or Mr. W. Dew, surveyor, Llangefin, Anglesea.

Just published, in TWO THOUSAND pages, royal octavo, price 36s., the

POST-OFFICE LONDON DIRECTORY FOR 1850.—Principal divisions of the work:—Official Directory; Street Directory; Commercial Directory; Trades' Directory; Law Directory; Court Directory; Parliamentary Directory; Postal Directory; City Directory; Conveyance Directory; Banking Directory; Assurance Directory—with a very great amount of general information.

For Reviews of the work, which is now the *only* London Directory published, see *Times*, 23d ult.; *Chronicle*, 22d ult.; *Herald*, 23d ult.; *Post*, 24th ult.; *Advertiser*, 24th ult.; *Daily News*, 23d ult.; *Sun*, 23d ult.; *Globe*, 23d ult.; *Brigadier*, 25th ult.; *John Bull*, 24th ult.; *Britannia*, 1st inst.; *Spectator*, 24th ult.; *Chemist's Journal*, 24th ult.; *Mining Journal*, 24th ult.; *Atlas*, 24th ult.; *Era*, 25th ult.; *Literary Gazette*, 1st inst.; *Examiner*, 1st inst.—Kelly & Co., Old Boswell-court, and all booksellers.

THE MINING ALMANACK for 1850: compiled and arranged by HENRY ENGLISH, Mining Engineer, &c. Under the especial sanction and patronage of H.R.H. PRINCE ALBERT, Lord Warden of the Stannaries, Chief Steward of the Duchy of Cornwall, Devon, &c.—THE SECOND VOLUME will appear early in JANUARY next, with ADDITIONAL TABLES and STATISTICS, connected with the Mining Interests.—Names of subscribers are requested to be addressed to Mr. H. English, 25, Fleet-street.

JOSEPH DEELEY, of the LONDON and NEWPORT IRON-WORKS, NEWPORT, MONMOUTHSHIRE, respectfully recommends to the notice of the public his PATENT FOUNDRY FURNACE, which has been effectually tested, and is now in constant use at the above works, where it may be inspected by all persons interested. This furnace operates without the aid of any motive-power to impel the air. An immense saving is the consequence, both in erecting and working. One-third of the coke usually required is more than sufficient; a loss of only 22 lbs. to the ton being sustained in smelting.

The IRON MELTED in this furnace also undergoes an extraordinary improvement in quality.

SCOTCH PIG and SCRAP are returned equal to the best cold-blast in point of strength, and capable of being shipped or filed with the greatest facility.

FOUNDRIES USING the FURNACE may exist in the most densely populated cities, without causing the least nuisance—all smoke, dust, and noise being entirely avoided.

The FOREIGN PATENT RIGHTS of the above are FOR DISPOSAL, affording capitalists the most favourable opportunity for profitable investment.

APPLY TO THE PATENTEE AS ABOVE.

CWMBRAIN PATENT IRON REFINERY.—The PROPRIETORS of IRON FORGES and MILLS are respectfully INVITED to MAKE TRIAL of Mr. BLEWITT'S REFINED IRON, or METAL, PREPARED by a

NEW PATENT PROCESS,

whereby the IRON is completely FREED from the IMPURITIES CONTRACTED in the BLAST-FURNACE, and, by judicious mixtures, rendered applicable to every kind of manufacture. Heretofore, the metal usually sold in the market has been produced from the worst pigs, scraps, and refuse of some particular blast-furnace, or set of furnaces, without any mixture, or any regard to quality, or the purpose for which it might be required. The PATENT METAL is PREPARED ON SYSTEM, and TO ORDER, for any of the following purposes:—

1. For BOILER and TANK-PLATES.
2. For TIN-PLATES, commonly called COKE-PLATES.
3. For STRONG CABLE BOLTS, RIVET, and ANGLE IRON.
4. This COMPOUND PUDDLED, beat under the hammer into a bloom, reheated, and rolled into a 6 or 6½-inch bar, makes TOPS and BOTTOMS for FLANCH and OTHER RAILS, of very superior quality, and attended with less waste than any other kind of iron used for that purpose. It is also well adapted for nail-rods, horse-shoes, and for other ordinary uses of the blacksmith.

The PATENT METAL is marked with a squirrel, and the initials "R. J. B.," and is to be had only at the "Cwmbrain Iron-Works," near Newport, Monmouthshire.

STRUVE'S PATENT MINE VENTILATOR,
COST—£150.
TO COLLIERY PROPRIETORS.

Quantity of air passed through a Mine almost unlimited, to the extent of 200,000 cubic feet per minute, if necessary—depending on size of apparatus.

COST of an APPARATUS to produce a ventilation of 20,000 cubic feet per minute, ONE HUNDRED and FIFTY POUNDS, exclusive of patent right. This amount of ventilation would be sufficient for a mine working 150 tons per day, provided it was not very fiery; in which case it would be desirable to provide for 30,000 cubic feet of air per minute. The capabilities of the Ventilator may be doubled at any future time, at a comparatively small cost.

The Ventilator has been at work for upwards of six months at the Eglesbush Colliery, near Neath, working under a rarefaction of 2½ to 3 inches of water, which demonstrates the impracticability of furnace ventilation, when the shafts are shallow and the airways small.—It is practical to rarify a mine by this ventilator to the extent of 2 feet of water, or 2 inches of mercury.

LICENSES will be GRANTED on application to
Mr. WILLIAM PRICE STRUVE, Swansea,
CIVIL ENGINEER AND MINERAL SURVEYOR.

HAIG'S PATENT VENTILATOR AND CONTINUOUS BLAST-BLOWER.
DEPOT—No. 69, MINORIES.

This APPARATUS is confidently recommended to the notice of Proprietors of Mines, Shipowners, Engineers, Smiths, &c., being a most effectual form of VENTILATION for MINES, SHIPS, BUILDINGS, &c., and at the same time a powerful and economical FURNACE AND FORGE BLOWER.

For description of the machine, vide *Mining Journal* of November 17, 1849.

WIRE ROPE.—The Undersigned beg to inform the public, that they have become SOLE LICENSEES of Mr. ANDREW SMITH, for the MANUFACTURE and SALE of his PATENT WIRE ROPE; and having fitted their premises with his very superior improved machinery, have only to assure those who may favour them with their orders, that the same care and attention shall always be bestowed which, they have reason to believe, has secured them such general support.

LIGHTNING CONDUCTORS, SIGNAL CORD, and SASH LINE, always in stock.
WILKINS & WEATHERLY.
Patent Wire Rope Works, No. 39, High-street, Wapping, London.

TO THE OWNERS OF COLLIERIES, MINES, PLANTATIONS, SAW-MILLS, &c.
IMPROVED CIRCULAR SAWS, MILL-SAWS, FILES,

Machine Irons, and Cutting Knives, Steel in Blister, Bar, Cast, Shear, and Drift Steel, Springs for Railways and Common Roads, Iron Washers, Bolts, Hammers, &c., on the most PERFECT and ECONOMICAL PRINCIPLES, MANUFACTURED with DISPATCH, by

BLAKE AND PARKIN,
THE MEADOW STEEL-WORKS, SHEFFIELD.

CERRO DEL BOTE MINING COMPANY.
(*Provisionally Registered, under 7 and 8 Victoria, cap.* 110.)

Capital £50,000, in 5000 shares, of £10 each, payable in four instalments.

The object of this company is to PROSECUTE and EXTEND the WORKS in the valuable SILVER MINES of the CERRO DEL BOTE, in the State of ZACATECAS, MEXICO, the drainage of which, by steam-power, being now completely established and effectual, the capital will be devoted to works of discovery and opening fresh ground—the present extraction of ores paying every other expense of the mine.

Prospectuses and every information can be obtained at the office of the company, No. 13, Austinfriars; or at that of John Taylor, jun., Esq., No. 6, Queen-street-place, Upper Thames-street—at either of which places applications for shares (addressed to the committee) may be made.

TRETHEVY COPPER MINE.—This MINE is situate in the parish of ST. CLEER, near LISKEARD, adjoining and parallel to the SOUTH CARADON MINES, whose riches are almost unequalled, and the vast profits realised by the fortunate adventurers are too well known to need comment: £5 per share was only expended, when they came to enormous riches. West Caradon, too, in the same neighbourhood, has turned out exceedingly rich. It is believed a similar fortune exists in TRETHEVY COPPER MINE; and when we view the trifling risk per share which is required to carry on the adventure, compared to the almost certain prospects of success, no one can object to the insignificance of the sum required. The mine is in a most beautiful valley at the foot of the Granite Hill of Caradon, a situation well known to miners to be productive. Cross-courses intersect the lodes at all points, being indicative of great mineral deposits. The east and west lodes are eight in number, large and well defined, with the two great South Caradon cross-courses running through the sett, as well as the West Caradon, and other large cross-courses. The gossan, peach, prian, and black and yellow copper ore, is of a rich description.

A shaft has been sunk to the 33 fathom level under the adit—the adit being 5 fathoms deep; but, owing to the scarcity of surface water in summer, the work could not be further prosecuted. Sufficient was seen of the lodes to evidence within 10 or 15 fathoms deeper that riches exist; carrying, as it does, at that level, rich black and yellow copper ore, with all the characteristics of South Caradon. The work done will belong to the adventurers, subject only to a small payment for the water-wheel and pump-work now on the sett, which will hereafter be paid by the shareholders, when arranged, as also about £120 preliminary expenses.

It is now, therefore, only necessary to erect a 40-in. cylinder steam-engine, with pumps, &c., and sink the shaft 15 fathoms deeper, the estimated cost of which is £1500; when this is accomplished, there can be very little doubt but that the shareholders will congratulate themselves on the stability and profitable nature of their adventure. The engine can be assisted by the water-wheel eight months in the year, so that the working expenses of the engine will be comparatively small, and every economy will be used in the works.

In order to carry out this undertaking in a *bond fide* and equitable manner, it is proposed, and agreed to by all parties concerned, that £1500 shall be banked, being obvious that the importance and flattering prospects of the mine fully justifies such determination, so as legitimately to proceed with the works, for the purpose of developing the riches, which all competent judges, who have seen it, unhesitatingly declare exist in the Trethevy Copper Mine. It will be here seen that the mine is not brought forward as a mine of a speculative character, but with the sole view of bringing a valuable property into commercial and profitable investment.—Sixty shares are reserved to the owners of the mine.

The dues to the Lord is one-fifteenth.

Purser—Mr. JAMES TIMEWELL, Exeter.
Bankers—Devon and Cornwall Bank, Liskeard and Exeter; Messrs. Sanders, Exeter.
Solicitor—H. W. HOOPER, Esq., Exeter.

The Mine is divided into five hundred and twelve shares; to be paid at various periods hereafter fixed, if required—First deposit, £1; second deposit, £1; third deposit, £2. The liability of each shareholder is about £4 per share.

It is believed that very little more than £1500 will be required before the mine is in profitable work. The greatest portion of the shares are already taken up by highly-respectable shareholders.

Mr. Henry Vatcher, Exeter; Mr. Thos. Sanford, Exeter; Edward Suter, Esq., Exeter; Mr. James Timewell, Exeter; Mr. Tricketts, Plymouth; Mr. John Seymour, Liskeard; and James Lane, Esq., 80, Old Broad-street, London, will receive applications for the few remaining shares, of whom all further information can be obtained.

PROFITABLE INVESTMENT for £250, £350, and £500 respectively (in the order of purchase). THREE (12th) PARTS in the ENGLISH PATENT for an INVENTION of EXTENSIVE UTILITY, in aid of which the proprietor possesses unusual means of publicity. From licenses alone it is calculated to produce several thousand pounds per annum.—Full information given (to principals only) by Messrs. Green and Prince, patent agents, 4, Trafalgar-square, London.

TO FOREMEN OF GAS-WORKS.—WANTED IMMEDIATELY, for the DEVONPORT GAS AND COKE COMPANY'S WORKS, a steady experienced man as FOREMAN. He must be thoroughly acquainted with, and be able to take the charge of, the retort-house, apparatus, and working accounts of the company, and have had some years practical experience in the manufacture of gas.

None need apply unless they can produce testimonials as to ability and good character. —The salary will be £6 6s. per month, with house, coals, and gas free.

Application to be made by letter, in the applicants' handwriting, with the names of reference, and where last engaged, addressed to Thomas A. Hedley, Esq., civil engineer, Devonport.—Devonport, Dec. 12, 1849.

TO SURVEYORS, COLLIERY OWNERS, AND OTHERS.—WANTED, a SITUATION by a YOUNG MAN, who thoroughly understands LAND and COLLIERY SURVEYING. If not wholly employed in surveying, would have no objection to assist in BOOK-KEEPING. The highest testimonials can be given. —Address H. Walls, Castle-hill, Hindley, near Wigan.

STEAM-ENGINE FOR SALE.—TO BE SOLD, BY PRIVATE CONTRACT, a 33-inch cylinder PUMPING ENGINE, 7-feet stroke, equal beam, with steam case, metallic piston, bright false cover, &c., complete, and in a perfect state of repair. Price £250.—For further particulars apply to Mr. John Taylor, jun., 6, Queen-street-place, London; and Mr. Joel Williams, Rhydymwyn Foundry, near Mold, Flintshire.

ALTERATION OF NAME.—In consequence of there being so many Mines in Devon and Cornwall called "Wheal Prosper," the directors of OLD WHEAL PROSPER have now ALTERED ITS NAME to one much more appropriate—viz., WEST POLGOOTH.—A PROSPECTUS of the MINE, under the new company, will be ready for ISSUE on MONDAY next.

Applications for shares may be made till 31st December, of Mr. Robert Williams, at Mr. Richardson's offices, 15, Old Broad-street, London.

HOLYFORD MINING ASSOCIATION.—TO BE DISPOSED OF, a FEW SHARES in the ABOVE COMPANY.—For particulars apply by letter (post-paid), to "F. Z.," care of Mr. Syrett, 72, Old Broad-street, London.

MINING PROPERTY.—Mr. JAMES HERRON, MINE AGENT, 33, CLEMENTS-LANE, LOMBARD-STREET, has received instructions to DISPOSE of SHARES in FIRST CLASS MINES, paying regular dividends, and yielding to the purchaser from 17½ to 25 per cent. upon his outlay. He is also in a position to transact business in the following—viz., South Basset, South Wheal Francis, Condurrow, West Buller, South Tolgus, Treviskey, West Caradon, East Wheal Rose, North Roskear, Trelawny, Mary Ann, East Tamar, South Tamar, Tincroft, Altens, East Crowndale, and Treleigh.

MR. T. A. READWIN, MINING OFFICES, 2, *WINCHESTER-BUILDINGS, OLD BROAD-STREET, LONDON.*

MR. H. B. RYE, has BUSINESS to transact, both as BUYER and SELLER in all the leading MINES in Cornwall, Devon, and Wales. For particulars, apply at his office, 77, Old Broad-street, City.

MR. R. TRIPP, MINING AGENT and SHAREBROKER, *BEDFORD CHAMBERS, BAMPFYLDE-STREET, EXETER.*

MR. C. S. RICHARDSON, CIVIL ENGINEER, LAND AND MINING SURVEYOR,
No. 15, OLD BROAD-STREET, LONDON.

JAMES LANE, MINING SHARE DEALER, 80, *OLD BROAD-STREET, LONDON.*

ROYAL SANTIAGO MINING COMPANY.—The directors hereby give Notice, that the HALF-YEARLY GENERAL MEETING of the shareholders will be HELD at the office of the company on Wednesday, the 2d January next, at One o'clock precisely, when the directors will make their report: after which the MEETING will be made SPECIAL, for the election of a director, in the room of Sir Samuel Scott, Bart., deceased.—Any proprietor intending to offer himself to become a director, must leave notice of such his intention, and deposit his certificate of shares to make out his qualification, at the office of the company, at least 21 days before the day of meeting.—38, Broad-street-buildings, Nov. 24, 1849.

CAMERON'S COALBROOK STEAM COAL & SWANSEA AND LOUGHOR RAILWAY COMPANY.—*Registered and Incorporated.*

Whereas the funds or property of the company, at the disposal of the board of directors, being insufficient to carry on the concerns of the company; and it being thought advisable to call for more than £6 per share of the capital or joint stock of the company, for the purposes of the company; the board of directors did, on the 10th day of December inst., come to a resolution, in the words and figures following (that is to say):—

Resolved—"That all the co-partners shall be, and are hereby, called upon to pay a further instalment of 2*l.* on the several shares held by them respectively in the capital or joint-stock of the company, in addition to the several instalments, amounting together to 6*l.*, which have been paid on the said shares; such instalment of 2*l.* per share to be paid and payable on the 6th day of March, 1850, at the Commercial Bank of London."

Now notice is hereby given, that an EXTRAORDINARY GENERAL MEETING of the registered shareholders of the said company will be HELD at the company's offices, 2, Moorgate-street, London, on Thursday, the 27th day of December, 1849, at one o'clock in the afternoon, precisely, for the purpose of entering into a resolution to confirm the said resolution of the said board of directors.

And whereas the directors of the company have approved, and do approve of, and have recommended to the shareholders of the company at an extraordinary general meeting of the registered shareholders of the said company, specially called for the purpose, and held at the company's offices, 2, Moorgate-street, London, on Thursday, the 6th day of December, instant, the making and constructing a branch railway, connected with the railway, authorised by the company's Deed of Settlement, and the Act of Parliament, 9 and 10 Vic. c. 401; and which branch railway is intended to connect the company's collieries with the Port and Docks of Llanelly, and is delineated on the map or plan then produced or shown to the said meeting, and marked with the letter C. And the said extraordinary general meeting resolved to make the said branch railway, and that that the said branch railway should be forthwith made and constructed from, at, or near the point marked A, on the said map or plan, to, or near the point marked B, on the said map or plan, as delineated on the said map or plan, with such divergencies, alterations, or variations, only as to the directors should seem necessary or expedient; and the directors of the company were thereby authorised, empowered, and required to make and construct such branch railway, and to enter into such contracts, and do, or cause to be done, all such acts, deeds, matters, and things, as they may think necessary or expedient for the purpose of making and constructing such branch railway.

Now Notice is also hereby given, that the directors will, at the said Extraordinary General Meeting, to be held on the said 27th day of December next, as aforesaid, again submit and recommend the construction or making of such branch railway to the said meeting, in order that the said meeting may come to a resolution to make such branch railway, or pass such resolution or resolutions in reference thereto, as the said meeting shall determine. By order of the board of directors,

EDWARD G. WINTHROP, Chairman.
A. C. HOWDEN, Secretary.
Company's Offices, 2, Moorgate-street, London, Dec. 11, 1849.

COLONIAL BANK.—The court of directors of the COLONIAL BANK hereby give Notice, that, in pursuance of the provisions of the Charter, a HALF-YEARLY GENERAL MEETING of proprietors will be HOLDEN on Tuesday, the 8th of January, 1850, at Twelve for One o'clock precisely, at the London Tavern, Bishopsgate-street, to receive the Report of the proceedings of the corporation; also, for the election of five directors and one auditor, in the room of the following gentlemen, who go out by rotation—viz.:

Directors:
Thomas Naghten, Esq.
William Tetlow Hibbert, Esq.
Charles M'Garel, Esq.
Thomas Masterman, Esq.
Sir Walter Minto Townsend Farquhar, Bart.

Abraham George Robarts, Esq.—Auditor.

The above gentlemen being eligible, offer themselves for re-election.

The transfer books of the corporation will be closed on the 24th inst., and re-opened on the 24th January next. By order of the court of directors,
13, Bishopgate-street, Dec. 17, 1849. C. A. CALVERT, Secretary.

NOTICE.—The court of directors of the ST. KATHARINE DOCK COMPANY do hereby give Notice, that a GENERAL HALF-YEARLY MEETING of the proprietors will be HELD at the Dock-house, Tower-hill, in the county of Middlesex, on Monday, the 21st day of January next, at Twelve o'clock at noon, for the purpose of declaring a dividend on the capital stock of the company for the half-year ending the 31st inst., when the accounts of receipt and expenditure of the said company for the year ending the 31st inst. will be laid before the proprietors, which accounts will be ready for examination, or inspection, by such proprietors on and after Monday, the 7th of January next. By order of the court, JOHN HALL, Secretary.

The books of the company will close on Saturday, the 22d inst., and open on Saturday, the 26th day of January next.

N.B.—The chair will be taken at One o'clock precisely.
St. Katharine Dock-house, Dec. 11, 1849.

FRANKLIN COXWORTHY'S DISCOVERIES IN NATURAL PHILOSOPHY.—No. XII.

The first evidence of the fact that matter by compression or contraction actually increases in weight with increase of specific gravity, was communicated by the discoverer to the Board of Health; and consisted in proofs that wood by compression, lead when passing from the molten state to the solid form, and the admixture of sulphuric acid and water whilst cooling, attained additional weight.

Deeming these illustrations to be, possibly, insufficient to satisfy others, with conclusive effect, he proceeded to devise such other experiments as would come within his limited means. Yet will not these efforts be the less interesting to our readers because they were of a domestic nature; since, besides their familiarity, they admit of repetition by thousands to whom expensive scientific apparatus is no more attainable than to Franklin Coxworthy. He ascertained that burnt coffee, when whole, occupies more space than when ground; and discovered that, during the disintegration of it, the mill is thrown into a highly electrical condition, so much so, indeed, that those particles which come into contact with the nozzle of the mill, drop only when the attraction has ceased—to which circumstance his attention was called by a grocer's apprentice, who, of course, was totally unconscious of the cause. And, having ground 2½ lbs. of coffee, he found that the increased weight, corresponding with the decreased space occupied by it, was ¼ of an ounce; but in a perfectly dry atmosphere, it acquired the further increase in weight of another ¼ of an ounce. In the evening, he packed it in a tin canaster, and, having placed it under pressure, so left it until the following morning, when he found a further increase of ½ of an ounce (one ounce in all), which ½ ounce of added weight, however, the precise amount obtained by compression, was immediately lost upon the coffee being restored to its uncompressed condition.

We find, then, by this experiment, not only a proof of the proposition principally sought to be sustained, but an illustration in the change of electrical condition, in the same substances, in an altered state of comparatively the most trivial kind. The coffee undergoing separation of its particles, became deprived of the electricity, "the bond of matter" which held those particles together; but acquired from the atmosphere, in a short time, more than it had lost in the mill; and, when subjected to pressure, became further charged with electricity in proportion with the increased proximity of its particles. Let us offer some corroborative evidence in support of this interesting problem. For the convenience of transport, millers are in the habit of compressing flour into casks, the customary quantity being about 196 lbs. in each cask; and it has been found, by careful examination made at the Deptford Tide Mills (at the suggestion of F. C.), that the increase of weight acquired by the operation is nearly ½ lb., irrespective of waste. Nor can it be objectively urged that the increase, in either of the cases mentioned, arose from the absorption of moisture from the atmosphere, since, from the time chosen, the atmosphere would be the more probable absorbent. But we have other proof to adduce, contained in a letter, now before us, from a large woollen establishment, in the City of London, under whose directions six pieces of woollen stuff, measuring 35 yards each, weighing together 59 lbs., including the wrapper, &c., were packed under pressure; and, upon being weighed, were found to have increased 3 ounces. It will be observed that the wool, having been twisted and compressed in the process of manufacture, could not be expected to derive as much increased weight from the experiment as if it had been submitted to the same pressure when in an unmanufactured state. To which we may add the well-established fact among mercantile people, that the wool delivered to our merchants from Australia weighs heavier here than when shipped there; and, doubtless, upon the proposition we are examining, the increased weight is derived from the pressure to which the packages are subjected during shipment, and must be lost to the purchaser when those packages are loosened for the purpose of sale or manufacture.

We are, ourselves, cognizant of the fact, that oil increases in volume with heat, and decreases with cold; and it occurs to us, while writing, that it may be worth Franklin Coxworthy's while, as the experiment can be so easily tried, even by a man of *his* narrow income, to ascertain what, if any, is the difference of weight under the two opposite conditions. If heavier, as we believe to be the case, when cold, then he will have the double proof, in one illustration, of the identity of cold and electricity, and of increased weight by contraction. Without that, however, enough is shown to prove that profit and loss is produced in trade by the effects of the compression of articles. But the most remarkable evidence that has come under our notice, consists in what is termed the "emoluments" derived at the Mint during the stamping of the coin.

Mr. Sheil, the Master of the Mint, in his evidence before the Committee of the House of Commons, appointed to inquire into the affairs of that establishment, stated that the workers derived emoluments to the amount of about 15,000*l.* a year, the source of which he was unable to trace! Our discoverer thereupon volunteered an exposition of the mystery, suggesting that if the metal were weighed before and after it had passed under the die, it would be found to have acquired about a half per cent. additional weight. Now here was a simple and facile, if not indispensably necessary, mode pointed out, of ascertaining how the "emoluments" are produced; and we are bound to conclude that, if the truth were known, the "moneyers," of the Mint are perfectly well aware of the correctness of the solution. They have, in all probability, experimented for their own satisfaction, although not for that of the public. Doubtless, they have as duly ascertained the productive cause of their emoluments, as they have determined to retain them; for they have reported that no "practical good could arise from the experiment, nor would it in any way affect the emoluments of the moneyers." Allowed to be judges in their own case, they pronounce a verdict for themselves, without the ceremony of taking evidence.

And so, whether or not on the coining of 1000 sovereigns, four or five are to pass into the pockets of the "moneyers" or into the public exchequer, we must leave to the decision of the Government or the Legislature. Mr. Shiel, the "politician of poetical temperament," soars above, or scrambles beneath, the regions of natural philosophy, an uncomprehensive "Master of the Mint;" the head of an establishment in which 15,000*l.* is made, *and appropriated*, every year, by unknown means, yet who has not sufficient energy to direct that a thousand pieces of gold shall be scrupulously weighed out at one stage of the process of coining, and re-weighed when completed! By-and-bye, this will become matter of history; and how insignificant will then appear the name of Richard Lalor Shiel, beside that of Franklin Coxworthy.—S.: *Cheltenham Journal.*

French Waterproof Cloth or Silk.—The following is the process adopted by M. Collet:—Take 1 lb. of linseed oil, 1½ lb. of white lead, 1 oz. of umber, and a clove of garlic; boil these ingredients for 12 hours over a slow fire, and when this composition acquires a skin upon its surface, it is fit for use. The cloth or silk is then to be immersed, being previously spread over a frame, then hung up to dry, and afterwards rubbed smooth with pumice stone. The material is next to be coated with another composition, prepared in the following manner:—Take 1 lb. of linseed oil, 1 oz. of litharge, 4 drachms of sulphate of zinc, and 4 ozs. of white lead, calcined to a yellow colour—boil these in an iron pot until they assume the consistence of paste. This preparation is then to be spread over the cloth on one side of it, and then dried in a heated chamber. For covering of silk this last operation should be repeated. Oiled-skin cloth, perfectly flexible and waterproof, is thus produced.

By the last West India mail we received a file of the *St. George's Chronicle*, published at St. George's, Grenada. This journal appears calculated to create a favourable impression regarding the progress of literature in our colonial possessions, it being conducted with great care, and, in all respects, one of the best issues of the West Indian press.

The Russian Scientific Academy has announced that, in obedience to the directions of the Emperor, a committee has been appointed to report on the project of the French chemist, M. Archerot, for lighting St. Petersburgh with electricity, and experiments are to be made on a large scale in several parts of the city.

The last accounts from America state that an immense meteor was seen to fall, and heard to explode, in Cabarras County, North Carolina, a few days previous. It struck a pine-tree in its fall, which it shivered into a thousand pieces; and masses of apparently molten iron were found buried several feet deep in the ground near the tree, the heaviest weighing 19 lbs.

Foolish Exploit—Caution to Miners.—On the morning of Friday week, a young man, named George Farmery, who works in the New Deep Pit, at New Park Gate, near Rotherham, foolishly attempted to descend into the pit in a corf, by means of the conductors used in guiding the corves up and down the shaft. The iron rods were wet and greasy, in consequence of which, when Farmery had descended a few yards, he lost the power of regulating the speed of the descent, and down he went at a fearful rate, to a depth of between 30 and 40 yards, when he alighted upon the chair that sustains the corves. He there remained, with his legs tightly wedged between the chair and the conducter, till assistance arrived, when he was rescued without any of his limbs being fractured, but considerably bruised and crushed, and unable to continue his work.—*Sheffield Times.*

Transactions of Scientific Bodies.

MEETINGS DURING THE ENSUING WEEK.

This Day	Asiatic—5, New Burlington-street	2 P.M.
Monday	Statistical—12, St. James'-square	8 P.M.
	British Architects—16, Grosvenor-street	8 P.M.
	Chemical—149, Strand	8 P.M.
	Medical—3, Bolt-court, Fleet-street	8 P.M.
	Pathological—21, Regent-street, Waterloo-place	8 P.M.
Tuesday	Linnean—Soho-square	8 P.M.
	Civil Engineers—25, Great George-street	8 P.M.
Wednesday	Society of Arts—Adelphi	8 P.M.
	Geological—Somerset House	8½ P.M.
Thursday	Royal—Somerset-house	8½ P.M.
	Antiquaries—Somerset-house	8 P.M.
	Numismatic—41, Tavistock-street, Covent-garden	7 P.M.
Saturday	Westminster Medical—17, Saville-row	8 P.M.

INSTITUTION OF CIVIL ENGINEERS.

December 11.—Joshua Field, Esq. (President), in the Chair.

The paper read was "On the Facilities for a Ship Canal Communication between the Atlantic and Pacific Oceans, through the Isthmus of Panama," by Lieut.-Colonel Lloyd, Assoc. Inst. C.E. In treating this subject, which, on account of recent events, has become one of great importance to the political and the mercantile world, the author brought to bear all the knowledge and experience acquired during a lengthened residence in South America, when serving in the Colombian Engineers, under General Bolivar, from whom, after much difficulty, he obtained permission to make the first survey of the Isthmus, which he accomplished in the most complete manner, as well as making soundings throughout the principal rivers and in the chief harbours; compiling, at the same time, a mass of minute and valuable information relative to the country, which he transmitted to the Royal Society, in whose archives they were deposited, and a paper on the subject was published in the *Philosophical Transactions* in 1830. Thus may Great Britain claim not only the projection of one of the greatest works of modern ages, but also for one of her sons the merit of having, for the pure love of science, been the first to demonstrate the facility of the accomplishment of that which so many have since descanted upon, and, to some extent, appropriated without acknowledgment.

The general views of the author incline to the formation of a ship canal, in preference to a railroad; he denies that there are any obstacles to its accomplishment, but, on the contrary, asserts so many local advantages to exist, and to be concentrated nearly at one point, that in after ages it will be a matter of wonder why so many generations should have neglected, or refused to render them available towards the establishment of this long-coveted communication between the two Oceans.

The paper first reviewed the surveys of Garella, of Morel, and others, who had examined the country subsequently to Colonel Lloyd. It then examined the various lines proposed, and gave reasons for preferring that which, starting from the beautiful bay of Limon, would proceed by a short canal, through a flat country, to the River Chagres, thence up the River Trinidad, as far as its depth would suit, and then cutting a canal into the Rio Grande, debouching at Panama. This line, it was contended, in the present state of the science of engineering, presented no obstacles, excepting the climate and the expense, to prevent a canal being cut of sufficient depth and dimensions to float, from one river to the other, the largest ship in her Majesty's navy.

The climate was stated, from personal experience, to be quite as good as in any tropical country, except in some particular spots, where, from local causes, certain complaints were rife. The expense could only be accurately estimated by the survey of experienced engineers; but, in a country abounding in fine timber, and the best building materials of all kinds, whilst no great chain of mountains, as had been fancifully depicted on suppositious charts, had any existence, except in the imagination of the designer, it was only fair to allow that the cost of a canal of such limited length could not be very great, and the supply of water might be presumed to be ample in a climate where there was copious rain for nine months in each year. The disadvantages of a railroad in such a humid climate were descanted upon at length, and it was shown that the risk of injury to merchandise from that cause alone, independent of that to be anticipated from breakage and pilfering, during the various trans-shipments, must induce preference for a canal, through which vessels should pass from sea to sea without delay, and continue their voyage to their destination without breaking bulk.

The means of accomplishing the work were then fully considered. The proposition for a certain number of convicts, to be contributed by Great Britain, France, and America, was shown to be untenable; but it was argued that a portion of the convicts from this country might be more advantageously sent there than to our present penal settlements. The means of preventing their escape were shown, and a proposition made for introducing with them a number of convicts from Bengal, and the other presidencies, whose language and habits would effectually prevent their mingling with the British convicts, whilst their power of enduring fatigue under a tropical sun, and during rains, and their simple mode of living, would render them valuable pioneers for the more robust Englishmen.

It was stated, also, that a great deal of native labour might be obtained at a cheap rate—6d. or 9d. per day, and his rations, consisting of a pint of rice, a pound of dried beef, and a "golpe d'aguardiente," being the ordinary pay of a "Peon." The chief point, however, insisted on by the author, was the great field opened in the Isthmus, for emigration, for the surplus population of this country. He contended that it was far preferable to the Canadas, where the poor, but industrious and honest, mechanic or labourer, on arriving, found that rich lands he had heard of could only be reached by a weary journey, and after such hardships, in a severe climate, as his limited means and broken strength rendered impossible for him to bear.

Australia, with its arid trackless wastes, held out still fewer temptations to the emigrant; for the ordeal of misery to be encountered by the majority was such as to deter all but the stoutest hearts from encountering it. The Isthmus had none of these disadvantages. It was comparatively within an easy distance; the emigrant would be at his destination almost on landing; the resources of the country were great, and the productions varied and cheap, whilst the present population was infinitely disproportioned to the superficial area of the country. This point was strongly insisted on, and it was argued, that a grant of land might be easily obtained, in liquidation of the debt owing by the Government of the country, and as the British had once possessed an establishment there in 1675 to 1690, under the charter of the "Scotch Darien Company," so a footing being again obtained, a barrier of the most formidable character would be opposed to the annexation proposities of our transatlantic brethren, who were making rapid strides towards the possession of this valuable tract. Appended to the paper, was a copy of the commission granted to Lieut. Col. Lloyd, by General Bolivar, authorising his examination and survey of the Isthmus, and of the rivers, which had previously been most jealously refused to every one. This document was alluded to with some national pride, as proving, that to an English engineer was due the merit of having been the first to examine and propose a work of such vital importance to the whole world, but which had been since claimed, and, in fact, appropriated by other persons without acknowledgment.

The discussion upon this interesting subject was announced to take place at the meeting of January 8th, as the evening of next Tuesday, December 18th, would be devoted to reading the annual report, and to the election of the president, vice-president, and other members of council.

Lecture on Steam-Boiler Explosions.—In the *Mining Journal* of 12th May last was inserted the outline of a lecture, delivered by Mr. Arthur Dunn, at the London Literary and Scientific Institution, Aldersgate-street, on the nature of explosions in steam-boilers, with suggested remedies; and this gentleman has since been delivering similar lectures in Liverpool, and the large manufacturing towns in the midland districts. On Thursday week he lectured at the Mechanics' Institute, in Manchester, on the same subject, the room being respectably attended by the scientific public, and a large portion of mechanics. The lecture was substantially similar to that above referred to, differing merely in detail. Among the various illustrations which were successfully accomplished, he showed water in its spheroidal state, according to Mr. Dunn's theory, the chief cause of boiler explosions. Having placed an iron cup over a spirit lamp, until it became of a red heat, he poured in a small portion of boiling water, which immediately ceased boiling, and kept moving about apparently itself red-hot. The ladle being taken from the flame, and allowed gradually to cool as soon as the temperature descends to 212°, the boiling point, the water instantly boils, and almost explodes into vapour. Mr. Dunn estimates that nine-tenths of the boiler explosions which occur are upon this principle; they generally happen at the dinner hour, when the water in the boiler has had an opportunity of remaining in a state of rest, and the water assuming a spheroidal form by the gradual heating of the boiler plates, on the working of the engines again agitating the water, it is caused to fall against the heated portion of the plates, when a sudden generation of steam and an explosion are the consequences. Mr. Dunn has patented an arrangement to prevent these casualities; it consists of both a pressure and temperature gauge, the tubes of which communicate with the interior of the boiler, and as either the pressure or the heat increases, the mercury in the tubes expands. At the degree of both pressure and temperature at which it is intended to work the boiler, a wire is inserted, which is connected with a galvanic battery, and as soon as the mercury reaches this point it completes the circuit, and rings an alarm bell, thus giving notice of high pressure, or high temperature, according to which bell has rung. The wires may be carried to any distance, and notice may thus be conveyed to the counting-house, or any distant apartment, as well as to the engine-house.

DEATH OF SIR M. I. BRUNEL.

The distinguished engineer, Sir Marc Isambart Brunel, Knt., Chevalier de la Legion d'Honneur, Vice-President of the Royal Society and of the Institution of Civil Engineers, &c., died on Wednesday, the 12th inst., at his house in St. James's-park, in the 81st year of his age.

By birth he was a Frenchman, but his life and genius was almost wholly devoted to the invention and construction of works of great public utility in this country, Sir I. Brunel was born at Hacqueville, in Normandy, now in the Department de l'Eure, in the year 1769, a year since remarkable for having given birth to many eminent men. His family has for many centuries held, and now hold, the estate on which he was born; and the name of Brunel is found constantly mentioned in the ancient archives of the province. He was educated for the church, with the prospect of succeeding to a living, and was accordingly sent at an early age to the seminary of St. Nicain, at Rouen. But he soon evinced so strong a predilection for the physical sciences, and so great a genius for mathematics, that the superiors of the establishment recommended he should be educated for some other profession than that of the church. His father strongly objected to his adopting the profession of an engineer, as one more likely to prove beneficial to others than himself, and he, therefore, determined that he should be educated for the naval service, in which he thought his son's proficiency in mathematics might lay the foundation of his advancement in that profession. At the proper age he entered the royal navy, being indebted for his appointment to the Mareschal de Castries, then the Minister of Marine. On one occasion he surprised his captain by producing a sextant and quadrant of his own construction, and which he used for making observations. He made several voyages to the West Indies, and returned home in 1792. At this time the French Revolution was at its height. As Mr. Brunel entertained royalist opinions, which he was not very careful to suppress, his life was more than once in danger, and he was, like many others at that time, forced to seek safety in flight. He emigrated to the United States, where necessity, fortunately, compelled him to follow the natural bent of his mind, and to adopt the profession of a civil engineer. He was first engaged to survey a large tract of land near Lake Erie. He was employed in building the Bowery Theatre, in New York, which not many years ago was burnt down. He furnished plans for canals, and for various machines connected with a cannon foundry then being established in the state of New York. About the year 1799 he had matured his plans for making ship blocks by machinery. The United States was not then a field for so inventive a genius as Brunel's. He determined upon visiting England, and offering his services and plans for this purpose to the British Government. Lord Spencer, then we believe First Lord of the Admiralty, became his friend and patron. He became a frequent guest at Spencer-house, and never failed to speak warmly of the assistance and encouragement he derived from the friendship of Lord and Lady Spencer. From this time he continued to reside in England, and refused to entertain many propositions made to him to leave England, and settle abroad under the auspices of other Governments.

After much opposition to his plans, for a very powerful interest was arrayed against him, not lessened in that day by his being a Frenchman, he was employed to execute them in Portsmouth Dockyard. To perfect his designs, and to erect the machinery, was the arduous labour of many years. With a true discrimination, he selected Mr. Henry Maudslay to assist in the execution of the work, and thus, possibly, was laid the foundation of one of the most extensive engineering establishments in the kingdom, and in which, perhaps, a degree of science and skill has been combined and applied to mechanical invention and improvement, scarcely exceeded by any other in the world. The block machinery was finished in 1806, and has continued ever since in full operation, supplying our fleet with blocks of a very superior description to those previously in use, and at a large annual saving to the public. It was estimated at the time that the saving, in the first year, amounted to 24,000*l.* per annum; and about two-thirds of that sum were awarded to Mr. Brunel. It is needless to describe the originality and beauty of this well-known machinery. Even after the lapse of 40 years, notwithstanding the marvellously rapid strides we have made in the improvement and construction of machines of all kinds, it remains as effective as it was when first erected, and unaltered. It is still an object of admiration to all persons interested in mechanics. A few years afterwards he was employed by Government to erect sawmills, upon a new principle, in the dockyards of Chatham and Woolwich. Several other inventions were the offspring of his singularly fertile mind about this time—the circular saw, for cutting veneers of valuable woods; and the beautiful little machine for winding cotton threads into balls, which greatly extended its consumption. About two years before the termination of the war, Mr. Brunel, under the countenance of the Duke of York, invented a machine for making shoes for the army by machinery, the value and cheapness of which were fully appreciated, and they were extensively used; but, the peace of 1815 lessening the demand, the machinery was ultimately laid aside. Steam navigation also at that time attracted his attention. He was engaged in the building of one of the first Ramsgate steamboats, and, we believe, introduced the principle of the double engine for the purpose. He also induced the Admiralty to allow him to build a vessel to try the experiment of towing ships out to sea, the possibility of which was then denied. Many other objects of great public utility occupied his mind, which in this mere outline of a long and active life must be excluded.

The visit of the Emperor Alexander to this country, after the peace, led him to submit to the Emperor a plan for making a tunnel under the Neva, where the accumulation of ice, and the suddenness with which it breaks up on the termination of winter, rendered the erection of a bridge a work of great difficulty. This was the origin of his plan for a tunnel under the Thames, which had been twice before attempted without success. In 1824, however, a company was formed, and supported by the Duke of Wellington, who took from first to last a deep interest in the work. Many men of science also joined it, amongst whom the late Dr. Wollaston was the most prominent, and whose brother long continued one of the most active and able promoters of the scheme. The work was commenced in 1824. It was stopped more than once during its progress by the breaking in of the river, and more effectually at last by the exhausted finances of the company, which never extended beyond the command of 180,000*l.* At length, after the suspension of the work for many years, by a special Act of Parliament, a loan was sanctioned, the Exchequer Loan Commissioners advanced the funds necessary for the completion of the work under the river; and, notwithstanding many weighty professional opinions were advanced against the practicability of the work, from both the loose alluvial nature of the soil through which it had to be constructed, and the superincumbent flood of water, it was finished and opened to the public in 1843. In a scientific point of view this work will always be regarded as displaying the highest professional ability, an amount of energy and perseverance rarely exceeded, and a fertility of invention and resources under what were deemed insurmountable difficulties, which will always secure to Sir I. Brunel a high place amongst the engineers of this country. During Lord Melbourne's administration Mr. Brunel received the honour of knighthood, on the recommendation of the late Lord Spencer, then Lord Althorp. Sir I. Brunel was a vice-president of the Royal Society, a corresponding member of the Institute of France, and a vice-president of the Institution of Civil Engineers. He was also a Chevalier of the Legion of Honour. He was unaffected, simple in his habits, and benevolent, and as ready to do a kind act as he was to forget an injury. He died in his 81st year, after a long illness, which first visited him soon after the completion of the Tunnel. The care, anxiety, and constant strain of body and mind, brought on a slight attack of paralysis, from which he never thoroughly recovered. He leaves a widow, Lady Brunel, one son, the eminent engineer, and two daughters, the eldest married to Mr. Hawes, the Under-Secretary of State for the Colonies, and the youngest to the Rev. Mr. Harrison, the vicar of New Brentford.

Mr. Robert Stephenson, C.E.—The *Moniteur* of Tuesday last publishes a long list of nominations and promotions in the Legion of Honour. Among the new chevaliers the first name that appears is that of Mr. Robert Stephenson, the eminent English engineer, who is stated to have "constructed several rail ways in England, and given plans for the Northern Railway of France."

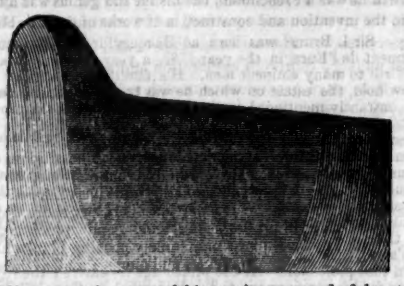
Improvements in Tunnelling.—Mr. Samuel Dunn, of Doncaster, has secured a patent for an improved arrangement for tunnelling under rivers, and other similar purposes. He employs a moveable shield similar to the one used by Mr. Brunel at the Thames Tunnel. The fore part is constructed of iron in the form of a plough, the point being of steel, divided into compartments, which are filled with compressed-air, to a degree to equal the outside pressure; the working part is separated from the plough by an air and water-tight partition, fitted with a tube communicating with a pump. As the shield advances the tunnel is built in; water is then pumped into the space between the partition and the piston, and the plough is thus pressed forward by hydraulic pressure, upheaving and turning aside the mud and sand in its progress. The working compartment is then advanced into the space, the part left behind bricked up, and so on alternately.

Taking Nothing on Hearsay.—The *Bombay Times* states that working models of railways, locomotive engines, and electric telegraphs, have been ordered from England for the use of a Mahratta sovereign, the Guicowar, whose curiosity has been aroused by what he has heard of those European wonders to such a degree that he could not be satisfied with what he could learn from books and pictures.

The Wonderful Efficacy of Holloway's Ointment and Pills in Curing an Aged Person of Rheumatism.—Mr. John Piff, of King-street, Dudley, who has resided in that town for upwards of 66 years, with the exception of 10 years, when he served in her Majesty's 24th Regiment of Foot, began to suffer about four years ago most severely from rheumatism, and at times was unable to walk. He was under various doctors, and took every kind of medicine without deriving any benefit, and at last was effectually cured by Holloway's pills and ointment, and he can now walk as well as ever he could in his life.—Sold by all druggists, and at Professor Holloway's establishment, 244, Strand, London.

THORNEYCROFT'S
PATENT RAILWAY AXLES, RAILS, AND TYRES.

RAILWAY TYRE.—Section No. 1, Half Size.

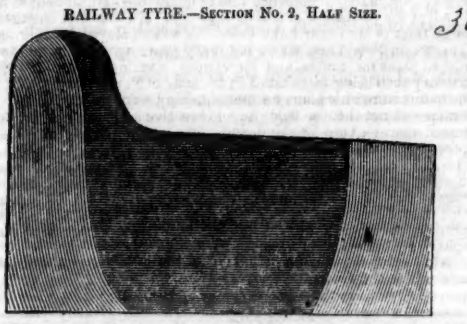


The middle, or wearing, part of this tyre is composed of chrystaline charcoal iron, the hardest and soundest iron made. The outward edges are made from a mixture of India charcoal pig with the toughest fibrous iron —the whole made upon an improved principle into one homogenous mass.

These charcoal tyres are warranted better and more durable than any tyres made in England.

Price—£15 per ton net at the works, up to 3½ cwts. each.

RAILWAY TYRE.—Section No. 2, Half Size.



The middle, or wearing, part of this tyre is composed of the best refined chrystaline puddled iron.

The outward edges are of the best No. 3 fibrous iron, and put together upon an improved principle into one homogenous mass.

These tyres are warranted quite equal to any made in Staffordshire.

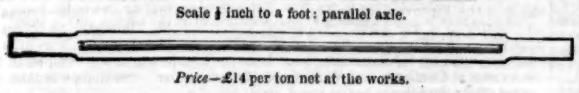
Price—£10 10s. per ton net at the works, up to 3½ cwts. each.

BEST STAFFORDSHIRE TYRES—£8 10s. per ton at the works, up to 3 cwts. each.

Fig. 1.

SECTION OF BRIGG'S PATENT COMPOUND AXLE.

Scale ½ inch to a foot: parallel axle.



Price—£14 per ton net at the works.

Fig. 2.

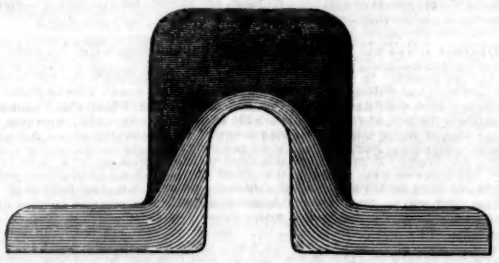
SECTION OF BRIGG'S PATENT COMPOUND AXLE,

Showing the extent to which the internal bar is welded solid at each end, drawn down in the middle half an inch.

Price—£15 per ton net at the works.

PATENT ANTILAMINATING CHARCOAL RAIL.—Section No. 1, Half Size.

Price—£10 per ton net at the works.



Patent Antilaminating Rails, made from the same quality as the best S & B iron. *Price*—£7 10s. per ton net at the works.

The upper, or wearing, part of these two sections of rails is made from antilaminating charcoal iron, much harder than any other iron, perfectly free from lamina. The under, or fibrous, part from best No. 3 puddled iron.

PATENT ANTILAMINATING CHARCOAL RAIL.—Section No. 2, Half Size.

Price—£10 per ton net at the works.

Patent Antilaminating Rails, made from the same quality as the best S & B iron. *Price*—£7 10s. per ton net at the works.

Rails of the same sections are made from puddled iron, quite free from lamina in the wearing part, but soft and less durable than charcoal rails.

This principle is applicable to any kind of rails.

I beg to inform the railway public, that the machinery for testing the strength of axles, and the strength and soundness of the tyres, is now ready; and I offer it to the public without any charge for its use, to try any one's make of axles and tyres they may think proper. A machine has been designed, and is now making by Messrs. Fox, Henderson, and Co., for proving the quality and durability of tyres and rails by actual wear and tear, the same as when at work on a railway, at any speed you like. The name of the designer is, I trust, a sufficient guarantee for its efficiency; in fact, it will be so true a test, that it must prove satisfactory to the most fastidious mind; and, so soon as it is completed, it shall be offered to the public, on the same terms as the testing machine above-mentioned.

Shrubbery Iron-Works, Wolverhampton. G. B. Thorneycroft.

FOREIGN INTELLIGENCE.

The Spanish Quicksilver Mines.—The adjudication of the products of the quicksilver mines was to have taken place at Madrid on the 2d inst. The only formal bidder was Weswitler (of the firm of Rothschild and Co.)—he offered to take the quicksilver at $54¼ a quintal. The firm of Manzanedo presented a petition that the adjudication should be adjourned—this firm neither made any offer, nor suggested any price. There was no adjudication, the minimum which the council of ministers had fixed upon being $70.

The last advices from Valparaiso contain further accounts of the activity of the mining interest which is now observable in most parts of South America. It appears that Mr. Wheelwright, the originator of the Pacific Steam line, had proposed a railway at Copiapo, to run from the silver mines at that place to the port. The distance is comparatively short, but the work will nevertheless be an important one, since, as the region is entirely arid, the miners have at present no pasture for mules, and consequently cannot convey their metals to the coast. The capital required is $800,000, and it is to be advanced by a company of 12 persons, who have each subscribed from $50,000 to $100,000. "The wealth of Copiapo [it is stated] keeps increasing very rapidly, and when the railway is completed the produce of their mines will be considerably greater, as now much valuable ore is left useless at the mouths of the mines for want of means of conveyance to the coast."

Letters from Christiania, in Norway, mention that the winter had set in not only very early, but to all appearance permanently this year. Notwithstanding the want of capital, native industry had made some progress, and the number of cotton factories and iron-works had increased. A railway had been projected from Christiana to Mjösen, which, if carried into effect, would be highly beneficial to the country, by bringing one of the best districts of Norway so much nearer to the capital.

Late New South Wales papers supply some interesting particulars of discoveries of valuable mines of coal, copper, iron, and other mineral productions in various parts of the country—discoveries which promise fair to add materially to the wealth and comfort of the colonists. Coal, we understand, has been discovered to an almost unlimited extent in the neighbourhood of Loutit Bay, which lies on the coast between Sydney Heads and Wannambol. Loutit Bay is a few miles to the eastward of Cape Otway, and was, we believe, discovered by Captain Moon, of the *Mary*, during the heavy gales on the coast of New South Wales in December last. The spot where the coal was found is about three miles from the bay, under Mount George; and it is reported that the coal lies in large quantities along that part of the coast, and could be shipped at Loutit Bay, if not on the very spot where it is to be met with. The *Bathurst Advocate* informs us that a valuable copper mine had been discovered at Rockley, New South Wales, on the estate of Mr. Steele, on the Campbell's River. The specimens of the ore which had been exposed afforded most promising indications. Some of the ore had been sent to Sydney for analysis, and should the result be favourable, mining operations will be immediately commenced. On the property of Major Lockyer, in Argyle, according to the *Sydney Herald*, there have been discovered immense quantities of iron ore, yielding, it is said, from 80 to 90 per cent. pure metal, which, as has been the case in other instances, is declared to be equal to steel. Some of the ore has been smelted at a common forge, and the metal produced was brought to Sydney to have its character tested. Major Lockyer, in order to avail himself of this valuable discovery, was endeavouring to raise a joint-stock company for the purpose.

A letter from John Moreland, Esq., dated Piéter Mautzburg, Natal, South Africa, Sept. 17, says—"I have no doubt that abundant minerals and metals, capable of being worked to advantage, will be found in the country. Iron is in abundance everywhere. I saw a beautiful specimen of lead, and another of plumbago, last week, procured within three hours' ride from Piéter Mautzburg, or at a distance of 18 miles. Coal is found of a good quality near Klip River, a distance of 100 miles; and again at the Bushman's river, 30 miles nearer. In fact, as far as I am able to judge, nothing is wanted, except capital, labour, and energy, to develope the resources, and turn all speculations and industry to good and profitable account."

The Great Welsh Colliery Case—Duke of Beaufort *v.* Morris.—In the Vice-Chancellor's Court, on Thursday last, this case again came forward—a petition having been presented by plaintiff supported by affidavits, for the purpose of obtaining the opinion of another, as to the alledged injury to the plaintiff's Landore Mine, by the driftway made by the defendant from the Pentre Mine. The case, it will be remembered, has been before the public on appeal to the Chancellor, and also on further direction. In support of the petition, it was contended that the injury done to the plaintiff was of so serious a character, that it was right and necessary to have another jury, as the real question and merits had not been presented to the former one, as the judge's summing up showed. For the defendant, it was urged that, by the verdict, the plaintiff's legal title was negatived, and the equitable title must follow; and that the effect of granting another trial at law would be merely sending a hypothetical question to the jury; and that if any injury had been sustained, the remedy was at law, and equity could not interfere. The Vice-Chancellor said he would consider the case before giving judgment.

New Coal Winning in Durham.—The coal which is now being obtained from the Marquis of Londonderry's new colliery, on the Old Durham Estate, is said to be of most excellent quality; and, from the easy manner in which it has been brought into working, is likely to prove exceedingly profitable. The low main seam was won at a depth of 14 fms., and the famous Hutton seam at 30 fms. The Marquis, accompanied by several members of the family, paid a visit to the colliery, when arrangements were made to give them a welcome reception. The greatest satisfaction was expressed at the state of the works, engine, and machinery, which was entirely constructed on the spot; and, on giving 10*l.* to the men, to drink health and prosperity to the family, his lordship told them that as long as they conducted themselves in the peaceable manner they then did, he would always be found their staunch friend.

Serious Affray between Welsh and English Miners at Aberystwith.—For some time past a strong feeling of rivalry has prevailed between the Welsh and Cornish miners employed at the Goginan Mines, near Aberystwith. On Saturday week, a spark, in the shape of a trifling incident, sufficed to kindle this long latent jealousy into a flame. A regular set-to of Cornish and Welsh was the result. Missiles of all descriptions were put into requisition by the infuriated combatants, and in the madness of their fury, guns were resorted to. Altogether, the conflict was of a savage character, and lasted a long time. A number of broken heads and other injuries was the consequence. Considering, however, the dangerous and deadly character of some of the weapons brought into action, the number of casualties was very small, and far from being of so violent a nature as might has been expected. A large number of the rioters were apprehended, and brought before the Aberystwith petty sessions on Monday.—*Swansea Herald.*

The "Turn-out" on the East Lancashire Railway.—We are enabled to state that all disputes between the directors and the engine-drivers of the East Lancashire Railway Company have been amicably settled, and that each driver would last night take possession of his own engine, and prepare to start this morning. We may add, that those officials who shall, upon proper inquiry, be found to have rendered themselves obnoxious to the body of engine-drivers and firemen upon the line, will be forthwith discharged.—*Blackburn Standard* of Wednesday.—[The same paper records seven accidents, some of them involving serious loss to the company, which have occurred in consequence of the employment of inexperienced hands during the turn-out.]

The Arches of the Lancashire and Yorkshire and East Lancashire Railway Station.—On Tuesday, a discovery was made that some of the arches of the new railway station, running parallel with Key-street, had sprung, in conseqnence, it is supposed, of the pressure of the heavy wall by which they are surmounted. There were several fractures in the wall, and fears were entertained as to its safety. The railway authorities, however, took prompt measures to have the arches and wall properly supported. A great number of men were employed during the afternoon in placing large pieces of balk timber, cut to a proper length, as centres under the several arches, and as buttresses to the wall where fractures had become visible, and where it was likely to be affected by the springing of the arches. Its present safety is thus secured; but it remains to be seen whether the slight cracks that have appeared may not necessitate the demolition and re-erection of the wall.—*Liverpool Mercury*, last night.

Monster Iron Warehouse.—We have had the pleasure of inspecting a most commodious iron warehouse, now in course of construction by Messrs. Cato, Miller, and Co., Brunswick Dock. It is intended for emigration to California, and has been built for Messrs. J. and J. Starkie. To look upon a work so gigantic, would lead to the conclusion that it would almost be impossible that it could be built in so short a period as has been occupied in its erection—three weeks. The whole building, which is 60 ft. in length, by 40 ft. in width, is constructed on a framework of wood and iron, and entirely sheeted, side as well as roof, with Moorewood and Roger's patent corrugated galvanised iron. The extreme height of the warehouse, by internal measurement, is 36 ft. at the gables, and about 26 ft. 4 in. at the eaves, and is divided into three stories, the first of which is 11 ft. in height, the second 9 ft., and the third 8 ft. Two rows of columns of iron are run down the first and second floors, to support the weight that may be stored on the several floors. Round the bottom of the building there is a wainscoating (on which the corrugated iron rests) of cast metal, and the whole is lighted with about 60 windows, all of which have iron mullions. Though every due attention has been paid to strength, it is somewhat remarkable that the weight of the whole will little exceed 30 tons—and while, from general idea, we should not expect a warehouse to present anything pleasing in appearance, this not only looks light, but presents the prospect of splendid dwellings. In point of workmanship or expedition, nothing has been wanting on the part of the builders—for, within one month of the time of ordering, it will be disjointed, and shipped to its destination—California.—*L'pool Standard.*

Original Correspondence.

THE PROPOSED CERRO DEL BOTE MINING COMPANY.

Sir,—The prospectus of the proposed new company, for working "the mines of the Cerro del Bote, in the State of Zacatecas, in the Republic of Mexico," lies before me. It gives a kind of *resumé* of the trials undertaken by the Bolanos Company; states clearly and satisfactorily the cause of its abandonment by that company, the state in which it was returned to the owners, the conditions on which it will be transferred to a new company, and the prospects of such company in working it. It also contains a list of the gentlemen forming the committee, and can be procured at the offices, 13, Austinfriars. To such as are desirous of lending their support to the promoters, Messrs. John Taylor, jun., and R. A. Kerrison, I would recommend its speedy attention. Meanwhile I may, perhaps, be pardoned the following extract, premising that the results therein given are "from workings on one vein only," and but a small portion of it:—"In order to show the productiveness of the vein, it will be sufficient to say, that during the period of the Bolanos Mining Company's possession the returns have amounted to upwards of $1,500,000; and, after paying the mine's costs, and those of reduction, the net gain thereon was $263,500, which, under ordinary circumstances, and *with the facilities now possessed*, would have exceeded $500,000. This profit of $263,500, together with $30,000 (*the whole capital invested by the Bolanos Company*), and $87,000 which has been borrowed or left unpaid by the company, makes a sum of $380,000 as the total receipts, which has been disposed of as follows:—In unproductive works, such as the shaft of San Genaro, Taylor's cross-cut, and other works in this part of the mine, the erection of the engine, buildings, &c., about $265,000; in the purchase and fitting up of a hacienda, about $50,000; the balance consisting of stores and other mining materials, cattle, cash, and ores on hand."

From the above statement I draw the following conclusions:—1st. The Cerro del Bote Mine could not have been abandoned by the old company because it was a poor one; the many drawbacks which, by overwhelming them, led to that result, were all the consequences of the wretchedly insufficient amount of capital supplied in the first instance. The directors had not the means of *fully* developing the mine, and it is very evident that, even during the continuance of their first prosperity, their position was a very precarious one, as, indeed, was manifested by their utter inability to combat with success those temporary difficulties to which all undertakings of a like nature are at one time or another subjected. For a long time, however, they held out, in the vain hope that the mine itself would pay the expenses of the many underground and surface works which it was absolutely necessary to undertake, and so, under other and more favourable circumstances, it would have done. But, as it was, all the returns, together with a considerable amount of borrowed capital, were sunk in these works; and from want of means to open new ground, the extraction of ore diminished from 2500 cargas per week to little more than 1000, and in proportion with that decrease the expenses increased, until at length they had not even sufficient funds to purchase stores. After two appeals to the shareholders for money, which ended in disappointment, the mine was finally given up. It is far from being my intention, however, to chaunt a requiem over the ashes of the defunct company; but as, from want of rightly understanding the matter, the Bote has been made to bear no mean portion of the antipathy arising from the disappointments occasioned by the failures from time to time of the Bolanos Company, I am induced to believe that such remarks are not misplaced. The Cerro del Bote laboured under the disadvantage of being looked upon as the retriever of the broken fortunes of the old company, without even the means being supplied to render it such; and these expectations were considered as in a fair way of realization during the continuance of the profits. They forgot that to every *naturally* drawn picture there is a black side, and great was the outcry when the dark side was exhibited. "The mine is worthless," they cried, "we'll give it up." And give it up they did, nothing could dissuade them.

A new company is now in course of formation to work it. Everything is put into proper train, and no time will have to be lost in preliminary works. The new company will profit by the labours of the old one, and will, moreover, irrespective of the advantages of being free from debt, and possessing the proper amount of capital, have other advantages which the Bolanos Company knew not of. Permit me, Sir, again to quote the words of the proprietors—"Mining materials and stores are generally lower in price than at any former period; labour is abundant, and the authorities seeing, though late in the day, that the welfare of the state is so much identified with the prosperity of the mining interests, have lately shown every disposition to encourage mining enterprise by the reduction of duties; *and a decree has just been published, by which mining undertakings are henceforth to be specially exempted from all forced loans and extra duties.* Owing to the reduction in the prices of most descriptions of stores, and other articles required for mining purposes, and to the improvements in the reduction processes, the saving in working expenses, as compared with a few years back, cannot be less than from 25 to 30 per cent. Indeed, it may be safely said, as regards the state of Zacatecas, that there never was a period, since the establishment of English companies in Mexico, so favourable for mining enterprises as the present." With this extract I shall conclude; I have said enough. Enough has been said by others: the rest is in the hands of the adventurers.—Z.: *Dec.* 12.

THE NORTH BRITISH AUSTRALASIAN COMPANY.

Sir,—In your last week's Journal you have an article on the North British Australasian Company, in which you have referred to the affair of the water-wheel, which is described in my correspondent's letter, and published in the postscript to my letter to the shareholders. Will you allow me to draw your attention to the following article in the *Southern Cross* (New Zealand paper), of 6th of July last [also quoted in the *Mining Journal* of the 24th November], on this subject? "A steam-engine is used for the purpose of pumping the water out of the shafts, from which the various levels proceed, where the ore is worked. Instead of adopting the usual method of raising the water in the shafts to the high-water mark only, and running it off by a channel at this elevation, *the water is raised about* 18 *feet above this level*, and is then allowed to descend upon the water-wheel which is to drive the crushing apparatus. Should this ingenious and original method succeed, it is likely that a patent will be applied for to protect the discovery. It is only to be regretted that the invaluable coalition of steam and water power has been so long unknown to the scientific world, as by this discovery it is confidently expected that the present steam-engine of 12-horse power will be made to do the work of a 24-horse engine. The poor engine is at present unable to raise to the *sea-level* even half the water in the shafts, so that it becomes the greater wonder how it should be able to achieve such extraordinary results by merely throwing the water up an *extra* 18 feet, and then allowing it to fall plump on the water-wheel. But this is an age of wonders!!"

Well might the writer append marks of exclamation. He either intended the above as a hoax, or he is a great simpleton. The whole affair is a forcible instance of the "danger of superficial knowledge." A writer, in a late number of the *Quarterly Review*, gives an article on "Popular Science," and draws attention to the work of Desaguilier's, in which he states—"A committee of the House of Commons reported, on one occasion, that a man, by a machine, could raise 10 times more water, to a certain height in a certain time, than was possible from the very constitution of things. The report was followed by a bill to establish a company, or, in other words, a bill to ruin [the simple and enrich the cunning, when a scientific nobleman exposed and defeated it 'Our legislators' is the reflection of Desaguliers on the occurrence, 'may make laws to govern us, repeal some, and enact others, and we must obey them; but they cannot alter the laws of Nature, nor add, or take away, one iota from the gravity of bodies." Again, the same writer observes—"But water-works were the grand *scientific* imposition. A well informed lord might hinder an Act of Parliament from passing, which avouched that the laws of gravity had been superseded, but private gentlemen continued to fall a prey to plausible pretenders, and persisted in erecting expensive monuments to their own folly in the shape of some useless and unsightly machine." Among other instances given by the writer alluded to is that of "one pompous knave, who obtained considerable subscriptions to his scheme, got leave to pump out the water from Rosamond's Pond, in St. James's Park. 'That performance,' says Desaguilier, 'and the repayment of the money, will come at the same time.' Several workmen expended their all in the purchase of patents for inventions, the product of unenlightened conceit, and which, if they had possessed the barest rudiments of science, they would have known to be fallacious." The Kaw-aw project is another instance of the absurdities that may be attempted. The writer of the above article states that "the poor engine (at Kaw-aw) is at present unable to raise to the *sea level* even half the water in the shafts;" yet the worthies there are determined that it shall do still less, by expending a great proportion of power in raising water 18 ft. extra—that is, 18 ft. above the height requisite for draining the shaft—forgetful of the established rule in hydraulics, that the power required to raise water is greater than the power acquired by its fall! The unavoidable consequence of this will be that the operations at the mine must be suspended until a more powerful steam-engine is sent out from England and erected. This is very annoying to the shareholders after the number of delays which have already occurred—delays which would have been, at least in a great measure, avoided had the mining operations been under the management of parties who understood their business. I have just observed a letter in your Journal of last week, from a correspondent at Whitehaven, taking the same view of the matter, and showing that the expense of the water-wheel, and its necessary requirements, must prove a loss to the company.

But, Sir, it appears to me that much of the company's money has been expended in simple experiments, when quite unnecessary. I have shown in my *Letter to the Shareholders*, lately published by Messrs. Wyllie and Son, of Aberdeen, how the calcining operation had been bungled, and how a much more satisfactory result could have obtained, had recourse been had to the usual modes of conducting it. Have the company lost no money by the erection of their

works at Sydney, and their subsequent removal? Have they lost no copper by the process they adopted there? And are they not likely to do the same by the process now carrying on at Kaw-aw? The latest accounts received in Aberdeen state that, even after calcining and fusing, the produce is very poor for copper! This is the result of the operations just commenced, and which it was hoped would have been more systematically and carefully performed. When is a different system to be adopted? No doubt, the parties concerned will not much like an exposure of their errors, for "there is nothing that more irritates a sanguine speculator, who is building castles in the air, than the friendly admonition that he is walking into a pit." This certainly is an age of wonders, and the greatest of all will be the grand Kaw-aw discovery, by which it is intended to gain more power by the fall of a certain quantity of water 18 feet, than is expended in raising the same quantity of water the same distance! I have no doubt the scientific world will be curious to learn the particulars of the patent when it is taken out.—J. H. MURCHISON: *Edinburgh, Dec.* 10.

VALLEY OF LOETCHEN MINING AND SMELTING COMPANY.

SIR,—My attention has been called to a paragraph in your Journal of last week, in reference to the "Valley of Loetchen Mining and Smelting Company," and I beg to inform your correspondent, that the suit he alludes to *is decided in favour of this company*, as will be seen by the annexed copy of a note received by our chairman from the resident director. The concluding observations of your correspondent are rather ambiguous, and I may state, in reference thereto, that the present position of the company, and the *more than promising* prospects of their mines, preclude the possibility of the shares being *really offered* at the price named.—A SHAREHOLDER: *St. John's-wood, Dec.* 14.

"*Council of State, Sion, November* 20.

"MY DEAR SIR,—I have the pleasure to inform you that the Council of State have decided your cause unanimously in your favour. "Yours, &c.

"To J. J. Rippon, Esq." (Signed) "J. RIBORDY, advocate.

THE PENN RECCA SLATE QUARRY.

SIR,—I notice many mine and quarry speculations winding up, or at a stand-still for want of capital to carry them out, which I consider is a great injury to the labouring class, and I know it is most practical men's opinion that money enough has been collected from shareholders to have given most of these places a fair trial, if the money had been properly applied to machinery and in prosecuting the underground works. It is from this the shareholder must get his remuneration for his capital, and not from unnecessary outlays; wherever we see this we are sure to find the party get short in one end, and the labourers left with two or three months' pay back, when they hang about in expectation of getting it, until they have no alternative but to apply to the parish. I am not an enemy to mine or quarry speculations; but every practical man must be aware that these things should be strictly carried out by the rules of economy, and due consideration ought to be given before they are rashly entered on, whether in erecting engines, driving adits, tunnels, smelting, or whatever they may be. It too often happens that undertakings of this kind are commenced on the bare opinion of one or two men, and they not at all times conversant with the subject they are about to enter on, which is the cause of three parts of the failures remarked in your Journal. It would be far better for the adventurer, labourer, and community at large if all the managing committees of mines and quarries adopted the plan of a gentleman in Cornwall, whom I could name if required; he had one of the largest concerns in the county, all carried out by himself single-handed; this person called on a practical man for his plan and specification, showing how his works could be carried out to the best advantage for the ensuing seven years; to give this in the usual ordinary way would require very minute consideration, if the man relied on his practical knowledge; this report was got up and given in, as practical agents are accustomed to do. What was the result? The proprietor, a well-known clear-sighted man, did not rashly adopt that report, and set to work, supposing it to be all facts, subject to no errors or miscalculations; but he turned round and said, "Your plan and report is all very clear and feasible, still I must test it," and he at once offered a premium free to all the world, for the best plan and report for carrying out his work for the ensuing seven years. This premium was sharply competed for by both practical and theoretical men, but a practical man carried off the prize, and his plan was adopted and carried out. This gentleman did not become bankrupt, but made it a very lucrative concern; he had confidence in his manager, notwithstanding he offered an annual premium to any man that could make any improvements on his manager's works, which kept him wide awake. Was this plan generally adopted we should not see so many untried concerns winding up almost in their infancy. It is the hobby-horse of most theoretical managers to show up whatever they undertake to require large outlays, and from their first commencement a practical man can see that profitable returns have no chance with them. If the Cornish gentleman's plan was adopted, all shareholders would have the true side of their affairs placed before them, in every case, within the first year.

These prizes should be published in your columns with the annual expenditure on the work, and the scrutinizing eye of the public would keep shareholders right, as far as fair play goes. By way of comparison, I would call the reader's attention to your Journal of the 1st instant, where I see a paragraph, showing the great outlay of above 30,000*l* on Penn Recca Slate Quarry, and also the advantages to be derived from a tunnel, driven for half a mile, at a cost of above 15,000*l*. Having been a manager, or proprietor, of some of the largest quarries in the west of England, for the last 20 years, I flatter myself that I know a little of quarry management, and was rather surprised at this report, and beg to offer, through your Journal, a few remarks on slate quarries, with my views as to the most effectual mode of working them, first remarking that I have not seen a body of good rock in the west of England sufficiently large to warrant so large an outlay, neither do I think it required. If I take this quarry for a guide, I can only rank it as a third or fourth-class quarry for the western district. In that case I imagine no practical man would think of going back half a mile for a tunnel, at an outlay of above 15,000*l*., when a *steam-engine*, such as I have put up in the largest quarries in the west, could be erected, with its gear, all complete, for 1000*l*., and of sufficient power to draw out 200 tons of rubbish and stone each day; this, at most, would require but *three months to complete*, when a tunnel of the length before mentioned would, in most of our slate rock, take up three years, which I call two years and nine months murder of time.

I would next endeavour, in round numbers, to show the daily expense of the steam-engine—first, one man to work it at 3*s*. per day; an ample supply of coals, 10*s*.; hemp, oil, and grease, 1*s*.; say about 14*s*. a day, which is more than it will cost.

I next look at the expense of half a mile of tunnelling, about 15,000*l*., remarking that what is gained in power by these tunnels is lost in time. Admitting that they put out 200 tons through it each day, which would require three horses and driver, with grease and oil, say 16*s*. a day, I place the wear and tear of horses, harness, waggons, wheels, and roads, against the wear of the engine; then there is an extra agent required to look after the surface-work, on account of it being so far distant from the quarry; if it was drawn up by a steam-engine, the surface agent can place himself three-quarters of his time in a position so as to see the pit and hill-men are duly performing their work; this would save one agent. The next, and not the least, evil in most slate quarries, is a bad hill to carry a quarter (which is about the marketable part) of good rock from the quarry, and in eight cases out of ten this would happen if tunnels were driven. I have invariably found these tunnels in valleys to discharge on flat or level surface ground, that admit of but little fall, which causes a great deal of land to be wasted; this land is often of three times the value of what is mostly found on the hills about quarries. In nearly every case where steam-engines are fixed on quarries, I have found an easy road can be made to carry off the marketable goods; this, with only about one-third to pay for waste land that those quarries have that discharge in deep valleys through tunnels, should not be lost sight of. I think enough has been said, without going further into details, to prove that a steam-engine is preferable, notwithstanding the tunnel is driven.

I admit there may be many circumstances in favour of Penn Recca tunnel that I am not aware of; but I know of no third or fourth-class quarry that I have yet seen in England that would warrant any company to waste three years of valuable time, and expend about 15,000*l*. on a tunnel, and 15,000*l*. on other works, before any progress is made in getting returns. I flatter myself that I have been as fortunate as most in all my undertakings in slate quarries; but experience has taught me that, under the present low prices of slate, there is no fortune to be made in the west of England quarries, without every branch of the work is carried out on the most economical principle, and with far less outlay than 30,000*l*. I unhesitatingly say that I look round and see many quarries worked by companies that have made great and unnecessary outlays, and are now arrived at the very point where shareholders have been given to understand that large dividends would be paid, in which I hope they will not be deceived; should it be the case, they have no one to blame but themselves. Had they only taken the trouble of looking round them, and marked what were dividend-paying quarries, they would have found every one of them carried on under the management of practical quarrymen; and not one can they find that pays a single shilling, that is managed by theoretical men of all professions.

I beg to remark, that I have not alluded to this quarry from any ill feeling, as there is not one of the party known to me. I am much obliged to your correspondent for his information as to what the component parts of good slate are. From my not being a practical chemist, I was not aware that the great laboratory of Nature was secretly defusing lead through these masses of slate rock; in this case the grand secret is out, how can slate be otherwise than elastic.—*N. ESNOR: Treborough House, Washford, Taunton, Dec.* 10.

P.S.—I will venture to put the question to any practical man to point out where I am wrong, when I ask if a third or fourth-class quarry could not be brought into a fair state of working with an outlay not exceeding 10,000*l*., if properly expended on the works? If it could not, let those who will work it.

MINING IN CARDIGANSHIRE—THE CWM ERFIN MINE.

SIR,—It has, unfortunately, lately been too often the practice, with respect to the mines in this county, to bring them out and work them almost solely for the purpose of selling shares, in contradistinction to working them with regard to legitimate profits, or as a source of interest for permanently invested capital. This has usually led to impatience amongst the shareholders, and dissatisfaction amongst the agents—the usual result of unreasonable projects and expectations. I last week noticed, in your valuable Journal, a few remarks written as a caution to mining agents in general, but more particularly to me (although I was not personally named), upon the subject of careful estimates, and mentioning that my services, with respect to Cwm Erfin Mine, had been dispensed with from some inaccuracy in my calculations. I must premise my observations by stating that mining is a much more abstruse calling than many people are aware of, and that, if allowances are obliged to be made in all engineering and architectural operations, it is much more necessary to make them in mining, where the best estimates are conjectural, and where the progress of the work is disturbed, or frustrated, by various unforeseen causes. I find that two mining authorities have been called in to examine into the veracity of my statements concerning Cwm Erfin Mine—one from Esgair Llee, the other from Bryn-Arian (*Anglicé*, the hill of silver). Both these authorities agree in stating that the ground in the mine, which I have estimated to yield 15 cwts. of ore per fm., yields 4 or 5 cwts.; and here I would remark a curious contradiction. I find reported in your Journal every week, that various lodes in Esgair Llee—viz.: the north lode, the south lode, and the caunter—contain fine courses of ore, and at Bryn-Arian, or the silver hill, the lode is reported to yield generally from 15 cwts. to 1 ton per fathom. A dozen men stoping in either of such mines as this, one would think, ought to produce a dozen tons of ore monthly. Now, it appears that, at Esgair Llee, the whole quantity dressed in the last 12 months has been about 10 tons, or about 1 ton per month, while, in the same time, Bryn-Arian has yielded about 40 tons of ore, or from 3 to 4 tons per month. How is it then that these two *celebrated mines*, with such fine courses of ore, have failed to produce together half so much as Cwm Erfin, with the poor course of ore, which is now yielding upwards of 20 tons per month? I like not those who can blow hot and cold with the same breath; I like a man who conscientiously tells the truth, whether for good or for evil. I do not like a subject, who, as the gambler in *Gil Blas* says, has a card to play to suit every necessity. Inconsistency is laid bare with very little trouble, and the old adage of people throwing stones who live in glass houses becomes every day more applicable.

It is now little more than 12 months since I undertook the management of Cwm Erfin Mine; the returns were then about 3 tons a month. At the time I leave the returns are 20 tons a month, and in three weeks time, after the holing of the 20 eastward to the 20 from Roberts's winze, will be 30 tons a month; while the cost will not be more than 200*l*., which should give a profit of 150*l*. a month. I shall tell the truth without regard to any sycophantic feeling. I understand that it is the intention of the committee to work out the ore discovered in the back of the 20 fm. level, and so make profit, without regard to sinking the shafts, and cutting out fresh ore ground, or to the preparation of additional machinery, for the future working of the mine. I speak now in the capacity of a shareholder, and I tell the committee candidly, if this system be pursued, that it will lead to repentance, and, more than that, to calls, to do the work that ought to be done while the mine is in a condition to bear the requisite expenditure. It is very reasonable to suppose that the committee is not much acquainted with mining matters. No doubt they are conscientious men, but coming from very different avocations from mining, and no doubt they are perfectly acquainted with the subject of their studies; but it is very likely they would be found equally valuable as a council on board a ship, without knowing navigation, or, perhaps, even the compass, to give advice to the captain, or helmsman, in a storm at sea, as to give advice to an experienced agent in practical and difficult mining. If gentlemen will act as committees of practical work, they ought to possess some practical information upon the subject, or be guided by some competent practical man, who is not afraid of giving his opinions freely. The old saying of a man being his own lawyer is equally true with respect to mining; and it will be found next year, should the committee neglect my advice, and omit to put up a steam-engine, and make further preparations for water power, that in the dry seasons before us our property will be deteriorated in value, and that the right thing will have to be done at a time no longer opportune.—ABSALOM FRANCIS: *Goginan, Aberystwith, Dec.* 11.

ACCIDENTS.

Dreadful Colliery Explosion in Denbighshire.—The neighbourhood of the Moss, near Wrexham, was the scene of unusual excitement, yesterday week, in consequences of an explosion which took place in a pit there, the property of, and worked by, the Brymbo Colliery Company. In this pit about 40 men were at work at the time of the explosion, and, as may well be imagined, the utmost consternation prevailed when the fact became known. From inquiry made on the spot, it appears that some of the men, whilst digging, cut through into the level of some old workings filled with foul air, which rushed like a flood into the pit where the men were at work, and then, by some means, ignited. Three of the colliers immediately made their way to the bottom of the shaft, and signalled to the engineman to wind them up, which, in the fright, he did after some delay. By this time the blaze was ascending the mouth of the pit, and whilst being drawn up the poor fellows' clothes caught fire, and they were dreadfully burned—two of them receiving such serious injuries that they have both since died, and the other man now lies in so precarious a state that he is not expected to recover. The other men in the pit, with great presence of mind, crept through an aperture into an adjoining pit, which, most providentially, was the means of saving their lives. A long time elapsed before their safety was ascertained, and in the interval hundreds of people were congregated round the pit, many of the persons present being relatives or friends of the colliers, and whose cries and shrieks during the awful suspense were of the most heart-rending description, and testified the agony of their feelings. The fire blazed for two days to the height of above 10 feet above the mouth of the colliery, and roared like a blast furnace. Water has been let into the pit, and the mouth has been stopped up, but up to Wednesday the fire continued to burn with great fury, although it is expected the means adopted will eventually extinguish it.

Dalquharran Colliery.—An explosion of fire-damp occurred here on the night of Thursday last, which, to a small extent, set fire to the coal; but the men escaped uninjured, after extinguishing the furnace fire. The works must be suspended for a time; and, in the interim, a new opening will be made on the coal seam.

Staffordshire.—Joseph Fletcher, a shoemaker, aged 21, proposed to his two brothers, for sport, to let him down the new shaft at Northwood Colliery, Fenton Vivian, which is about 17 yards deep; but, as soon as he got to the bottom, he called out "ther's sulphur, pull me up," and fell out of the bucket. An alarm was instantly given, and John Cook, Mr. Alderman Copeland's shepherd, went down, got out, and sat down with his hat between his legs, overpowered by the vapour, from which posture he never moved. Mr. E. Melbourn, engineer at Holly Bush Colliery, attempted to descend with a lighted candle, which went out about nine yards from the mouth of the shaft, and he was drawn up insensible. At length water was thrown down, which dispersed the carbonic acid gas, and the two bodies were drawn up, life being quite extinct.

Merthyr.—J. Evans was killed by a fall of coal at the Danedery Colliery.——J. Lewis, aged 16, was run over in the dark by a load of trams, and so injured that he died next day.

— T. Price was killed by a fall of roof in Ned Bath's pit.

— B. Shankland was killed, and horribly mutilated, by falling into the machinery belonging to the Wernlas pit, at the Plymouth Iron-works.

Etherley.—A fine intelligent boy, named Morris Jopling, aged nine years, was run over by the coal waggon which he was attending from the pit to the coke ovens, by which his leg and thigh were smashed to pieces. It being considered he was too weak to bear amputation, the operation was delayed, and he died at 4 o'clock next morning.

Sheffield.—T. Watts was killed by a fall of "bank" at the Soaphouse coal pit.

Rochdale.—T. Hill, aged 24, was killed by an explosion of fire-damp at the Dean Colliery, Castleton, belonging to Messrs. Wild and Co.

Dudley.—F. Smith was killed by a fall of coal at the colliery of Messrs. Pargeter and Darby, at Cradley Heath.

Kingswinford.—J. Perks was killed by a fall of coal in the Oak Farm Colliery, through his neglecting to prop the roof.

— B. Marsh was also killed by a fall of coal in a pit at Shutt End.

Carmarthen.—One of the men working at the Cystanog lead mines was killed by the falling of a portion of the roof.

Llanelly.—An explosion took place at the Llandafen coal-works, by which one man and two boys were severely burned.

Wednesbury.—A most tragical occurrence took place in this neighbourhood last week which, common and distressing as accidents are in mining districts, is more than usually awful. In a field in the Holyhead-road is a colliery belonging to Messrs. Adams and Richards, of Bridge-street, on the bank of which are two small houses, one of which not being required for the purposes of the coal works, was inhabited by John Pettifer, his wife, and five children, from five months to 13 years of age. About seven o'clock in the evening, Betsey, the eldest, was sent on an errand to a shop about 70 yards distant, and as she did not soon return, the father went to seek her; he also remained very long, and the mother becoming alarmed went to see what had become of them, leaving the four children sitting by the fire. The eldest boy fell asleep, and was awakened about two o'clock in the morning by his brother and sisters crying; finding his parents and sister still absent, he resolved to go to an aunt who lives near. He happened to diverge from the regular path, by which unwittingly his life was preserved; and, observing a smoky vapour through the darkness he told his aunt of the circumstance, as well as the absence of his parents and sister. She immediately obtained the assistence of some neighbours when they found that a "crownings in" had taken place—viz.: the covering of an old shaft had given way about eight yards from the cottage, and directly in the foot path, into which the three persons had unconsciously walked, and met with a premature death. The vapour prevented any steps being taken for the immediate recovery of the bodies, and it was two days before they were got out. The shaft was 40 ft. deep, connected with some very ancient coal workings, as no one in the neighbourhood had the most remote idea, even by tradition, of its existence. This is another fatal argument, in addition to the thousand already adduced, of the necessity, the paramount duty, of owners of mining property *not* only being compelled to rail round all discontinued shafts, but to keep true and correct maps and records of every fathom of ground sunk and driven or of coal worked out, as a guide in after years to the miner, and for the proper construction of buildings, roads, and footpaths at surface.

TURN OUT MINERS.—The colliers (to the number of between 200 and 300) lately in the employ of Messrs. Knowles and Co., near Rochdale, who turned out about ten days ago, still remain on the strike. They complain that their earnings (exclusive of candles, oil, and tools) do not average more than 2*s*. 4*d*. per day. The hands at several other pits in the neighbourhood of Rochdale, Middleton, and Heywood, have also turned out for more wages.—*Man. Exam*

The Compendium of British Mining.

BY J. Y. WATSON, ESQ., F.G.S.

Hitherto we have confined ourselves to dividend mines; but as at the present time there are many young mines holding out great prospects of profitable results in a short period of time, after having been fully explored and laid out, we purpose naming a few, before continuing the list of those now paying dividends. It must be obvious to all, that every mine fairly worked must undergo thorough exploration and a full development of its resources, so that, when profits can once with safety be made, their continuance may, to a certain extent, be relied upon. This stage of mining is speculative, and those who embark in it early look for large returns in the increased value of their property in case of success. The original outlay required for incipient mines varies greatly in different districts; on East Rose 50*l*. per share (128ths) was expended, and this mine has returned more than 1000*l*. per share in dividends; in Devon Consols 1*l*. per share was paid up, and 70*l*. per share divided in profits *the first year*. Against such as these—the great prizes in mining—we might name many proving blanks altogether, whilst others require both time, patience, and money; and, as these remarks are intended chiefly to guide those entering upon mining, we should say that, to do so with safety, a judicious selection of *more than one* should be made—the chances being that out of three or four, one would repay the outlay in all, even should the others fail.

SOUTH TOLGUS COPPER MINE.—In 256 shares, about 20*l*. per share paid up—present price, 100*l*. This adjoins the North Pool Mine, shares in which in one year rose from 50*l*. to 500*l*. in value. South Tolgus is now working at a profit, and promises to commence dividends early next year. Management in good hands, and the shares held by few parties.

SOUTH TAMAR CONSOLS SILVER-LEAD MINE.—In 9000 shares of 16*s*. 6*d*. per share paid up—price about 45*s*. to 50*s*. each. As a lead mine upon which, by old companies, large sums of money were spent, this is decidedly the best speculation of the day; and it has been calculated that 5000*l*. to 6000*l*. per year can be made in profits. So long ago as the reign of Queen Anne this mine, in connection with East Tamar, was worked, and returned large quantities of silver and lead. Then, again, the Beeralston Company worked it thirty years ago, and made large returns; but the veins running under the river Tamar, and owing to disputes then pending between the Duchy of Cornwall and the landowners, as to whom the bed of the river belonged, the workings were stopped at the banks of the river. The present company have a grant from the duchy to extend the works one mile under the river.

[*To be continued in next week's Journal.*]

Mining Correspondence.

BRITISH MINES.

ALFRED CONSOLS.—The lode in the 60 fm. level, east of Field's engine-shaft, contains a solid course of copper ore, 2½ ft. wide, for about 4½ ft. up from the bottom of the level, over which is a small crossing of spar, inclining up as it goes east, and very shortly will reach the back, from present appearances; over this spar it is not quite so good, but a good orey lode. I think the ore at this place will produce 8 per cent., all broken together. The men, on Saturday last, were increased from six to eight in this level—the price given for driving is 6*l*. per fathom. The shaftmen have a contract to complete every thing for sinking under the 60 fm. level for 18*l*.; they continue 16 men until this bargain is finished, after which four will commence driving the 60 fm. level west. There has been a small quantity of the lode broken at the bottom of the shaft during the past week, and it still improves in appearance. In about nine days from this time we shall be in a regular course of working. The lode in the 50 fm. level east, which is now just as it has been for some time past, is for the present suspended. The men have commenced sinking a winze to ventilate the 60 fathom level. No change in any other part of these mines.

BARRISTOWN.—The new lode in the 18 fm. level end west is very regular, about 1 ft. wide, and producing about 6 cwts. of lead per fm.; the stopes in the back of this level are producing about the same quantity. We are sinking the winze which was sunk 9 fms. under the 18 fm. level, about two years since, on a branch of lead; it is improving, and still going down perpendicularly, producing about 6 cwts. of lead per fm.; this branch is a part of the new lode we are driving on, but divided from it by a slide. We have been deterred in sinking in the bottom of the 24 fm. level during the last week by cutting ground for the water inside of the level, and preparing to discharge the stuff through Kiln shaft; in the adit level east we are breaking but little at present.

BEALBURY (COPPER AND SILVER).—Our reports of last week, and the expectations we then stated, have been fully realised by cutting the caunter lode in the wheel-pit, where it has produced some fine ore—a sample of which we have sent to be assayed, for the purpose of ascertaining its value, and samples are also sent to the offices in London. We intend opening on the lodes in several places, in the hope of making further valuable discoveries.

BEDFORD UNITED.—The engine-shaft is sunk 9 fms. 4 ft. 6 in. under the bottom of the 103 fm. level; the ground is still hard, but not so much so as it has been for the last two months. In the 103 fm. level, east of the engine-shaft, the lode is better defined, and the ground about it more favourable; it is letting down a good deal of water, and producing some good stones of ore; in the same level, east of Burley's winze, we are in the capels of the lode, and expect to reach the shoot of gossan ore in the course of a few days; west of Burley's winze the lode is producing good saving work; it is about 2½ ft. wide, composed of spar, *can*, *&c.*, black and yellow ore, and altogether has a most promising appearance; in the back of this level we have a pitch working, at 6*s*. in the pound. The winze from the 80 to the 90 fm. level has been holed, and we have resumed driving the 90 end east, but have not taken down any of the lode since last report. In the bottom of the 90 fm. level we have commenced sinking a new winze (about 20 fms. east of Burley's winze); it is sunk 6 ft. under the level, and the lode in the bottom of it will produce about 8 tons of ore per fm., worth 6*l*. 10*s*. per ton. In the 70 fm. level we are driving by the side of the lode, and there is no alteration to notice. The pitches are yielding a full average quantity of ore, and we have sufficient for our next sampling already broken.

BIRCH TOR AND VITIFER.—We have driven a cross-cut in the 8 fm. level 7 ft. to the north of the lode worked on by the ancients, and have cut the lode that we are driving on west from Dunstan's shaft, and which is looking very well. We have cleared and secured the adit level, west of this shaft, about 23 fms., and the ground in the back and bottom of this level is all taken away. The 20 fm. level, west of Dunstan's shaft, is opening very well; the 20 fathom level, east of this shaft, is at present poor. The 10 fm. level, west of this shaft, is opening very well; we have three pitches working in the back of this level, and they are carrying up 32 fms. of ground in length with them, and the whole of this ground is looking very well. The ground in the 10 fm. level east, on the cross-course, is at present hard. The ground in the cross-cut north of the Birch Tor lode is favourable for driving; there is no alteration on Birch Tor lode.

CAMBORNE CONSOLS.—It is so short a time since I sent you my last report, that I have but very little news to communicate, except as regards the silver lode, which, I am proud to say, continues to equal my expectations. I have no hesitation in saying, we shall raise sufficient silver to enable us to pay the costs of the mine, and to realise considerable profits; though, as I have before remarked, our great returns will, by-and-bye, flow from the copper lodes. The back of our silver lode, in the 20 fm. level, is turning out very fine work for silver, and our present end is looking very promising. One would gather from the *Mining Journal* that the end had failed, but that is not so. Since I have been underground this morning the men in the end have cut into some very pretty ore; it contains some native (but I believe it to be very rich) black sulphate of silver for the most part. I dare not, however, speak positively; I must send it to an assayer, and here again I feel the want of an assay office. I send you the estimate for the latter, amounting to 28*l*. 12*s*. 6*d*., and I hope to receive instructions to get it built forthwith. Our prospects, as to copper, are very flattering, and it is certain that a little time hence we shall be getting it in considerable quantities. The caunter lode is a very fine one at present, and fast increasing in size, and when it comes in contact with the other lodes, which it is rapidly approaching, I expect it will be very productive, even at the adit level; below that level the results are certain. We have only just now, I think, about half-a-dozen tons of good ore raised, but that is worth from 8*l*. to 10*l*. per ton. Now that Tyndale's shaft is completed, I hope we shall soon increase the quantity—the want of such a shaft sadly delays us. I am glad the directors consent to the driving of the cross-cut from Tyndale's shaft; the object being a very important one, which, no doubt, will soon repay itself. You will observe by the setting list, that it has been taken at 2*l*. per fm., to be carried 7 ft. high and 3 ft. wide, and good levels.

CARTHEW CONSOLS.—At the upper mine we have forked, cleared, and secured the engine-shaft to the very bottom, which is sunk about 2 ft. below the 65 fm. level; we can penetrate this level north about 30 fms., and south about 10 fms., but can say nothing of the lode for the present, as it is backed close with timber as far as we have gone each way. I do not think there is much ground worked away at this point from appearances; and I am of opinion we shall find here large quantities of ore. The lode in the end, at the 48 fm. level south, is somewhat disordered to-day. At the 28 fm. level we have done but little in the end this week, having had the men sinking a winze in the bottom of the 48 fm. level, wherein we have a very good lode indeed in lead, but in it the water is very quick, owing, I suppose, from the deeper levels not being further under it. The tribute pitches are very much improved this week, but I have not yet set the new ones I intimated in my last report of setting. At the lower mine, agreeably to the run of the upper mine lode, and that of this mine, and with the distance we have driven on the latter (which is about 190 fms.), I presume we have to drive about 20 fms. to intersect the former from this adit end.

— At the upper mine, the sumpmen have this week been busily engaged in clearing the 65 fm. level, north and south, and more particularly the latter, having found in stoping the bottom of the 48 fm. level (but which, in consequence of plenitude of water, we are obliged to abandon until the 65 fm. level is got under it), there is a very good lode indeed gone down for 20 fms. in length. This bunch has been worked in the 28 fm. level, and was found to be short but good; in the 38 fm. level it was found to be much greater in extent, and also richer, from which we got a great portion of the lead raised up to the end of last month; and in the 48 fm. level (as above stated) it is found to be lengthened out to 20 fms.; in the 65 fm. level there can be no doubt but what it will be found of still much greater magnitude. The lode in the end, in the 48 fm. level, has not been taken down this week; but in taking it down in the 28 fm. level it is found much as last reported. A lack of surface water is very much felt in dressing and crushing the ores; and the tributers are increasing their piles of work in this department, which will cause a depression in our sampling mainly from it, as we have now a large quantity of work on surface which we are obliged to leave untouched, and should have gone into this sampling. At the lower mine, the lode and ground in the adit level here do not appear much changed of late.

CWM ERFIN.—We continue sinking the engine-shaft, and shall, as soon as we can, make a communication from the whim-shaft to Roberts's winze. The whim-shaft ought to be sunk immediately, also Roberts's winze, from the 20 to the 30 fm. level, to throw open ground for the further returns. I would also advise to continue the present winze from the 30 to the 30 fm. level; there are from 2 to 3 fms. more to sink, which will be in the centre of the shaft; the winze at present is poor, but it will be convenient for air, and stoping the ground from the back of the 30 fm. level. The stope, 15 fms. east from the engine-shaft, is worth 4*l.* per fm., and should be worked by two men for the next month; ditto from 20 to 30 stope, is worth 7*l.* per fathom, and should be worked by four men for the next month; ditto from 30 to 40 ditto, is worth 12*l.* per fathom, and should be worked by six men for the next month; the 20 fathom level, east of whim-shaft, is poor, and should be worked by six men; the 20, west from Roberts's winze, is worth 7*l.* per fm., and should be worked by six men, until there is a communication, which I hope will be effected in three weeks from this time; the 30, east of Roberts's winze, is worth 16*l.* per fm., and should be worked by four men at present; ditto stoping, over the eastern level from Roberts's winze, is worth 16*l.* per fm., and should be worked by four men at the present, and by this mode of working our returns will be 20 tons per month, but after we get our course to Roberts's winze our returns will be much larger; such is my plan for properly carrying out the mine. If you think to have dividends, you must work the mine differently, and stop all that will not pay for working; then you will be taking away the ore ground that is laid open, and leave none laying open for a future day, which will soon make a beggar of the mine.

DAREN.—The ore ground in the middle level looks exceedingly well, and I have not the slightest doubt but that we shall be able to trace this ore ground in the deep level, by expending a little money in opening the ground. My object at present is not so much to raise ore as to examine the resources of the mine, to ascertain to what extent it will become available for returns. In this work, considering our work of exploring has been in the backs and sides of old adit workings, which in general are well searched by tributers, we have been uncommonly fortunate. In the western part of the mine, where most of the workings, which are very extensive, are under, and which I am persuaded will turn out to be a very valuable field for speculation when drained, we are driving a cross-cut from a shaft 10 fms. west of the western engine-shaft, at 10 fms. from the surface (being the level of level Coed, when the water goes away), to intersect the line of the Cwmaymlog lode. I consider the foreground to the westward of this trial a very favourable country for the produce of ore. The machinery has not yet arrived, but is daily expected, at Aberystwith.

DEVON AND COURTENAY CONSOLS.—The lode in the end driving west, in the 40 fm. level is still in a disordered state, from the lode being divided into two branches, mixed with white iron, mundic, and spar. In the end driving east, in the 50 fm. level, the lode is 2 ft. wide, composed of spar, mundic, and good stones of ore. The shaftmen continue to sink the engine-shaft, the ground rather hard. The pitches generally are looking well. We sampled on Saturday last 21 tons 19 cwts. 1 qr. of dry ore.

EAST CROWNDALE.—In the 28 fm. level east the lode is kindly, but not rich for tin; in the 28 fm. level west the lode is large, producing some good saving work—the tributers are getting wages. We intend sampling our next parcel of tin early in January, 1850.

EAST WHEAL GEORGE.—*Dec.* 11.—Since my last report we have completed the cross-cut 7 fms. 4 ft., and intersected the lode this day, and broken some excellent work, but I cannot say the size, not having sufficient time to cut through the lode. I shall be able to say a great deal more about the lode next report.——*Dec.* 13.—The lode is cut in the adit, and the men have broken some fine copper ore; by next week we shall be able to describe the size and properties of the lode, not having had much time since its intersection to explore it more fully. I think there is no doubt of having our expectations realised as far as having a good and profitable concern.

ESGAIR LLEE.—The north lode in the deep adit, east of the cross-cut, is not looking quite so well as when last reported; the lode is 4 ft. wide, and producing some good stones of ore, but not sufficient to set a value on. The lode in Morgan's winze, below the 12 fm. level, is from 3 to 4 ft. wide, composed principally of compact slate, and producing some good stones of ore, but not sufficient to put a value on. The caunter lode in the 12 fm. level, east from surface, is looking very promising, producing some good gossan, blende, and lead, but not sufficient to put a value on. We have not yet cut the caunter lode in the deep adit, east from the base of the hill, nor yet holed the shallow adit on the caunter lode, west of Morgan's winze, to the one east from surface; the lode is very large, and composed of good gossan, blende, and lead. We are getting on very well in sinking the engine-shaft.

HEIGNSTON DOWN CONSOLS.—I beg to inform you that the lode in the 20 fm. level, west of Hitchins's shaft, is much the same as last reported. The lode in the 35 fm. level, east of the cruss-cut, has improved since my last report; there is now a very good branch of copper ore in the present end. In the winze sinking under the 35 fm level we have broken some excellent stones of copper ore in the past week. In the 45 fm. level cross-cut we have cut two branches of spar giving out water, but the main part of the lode is not yet reached.

HOLMBUSH.—The lode in the 120 fm. level south is 5½ ft. wide, composed of quartz and stones of lead; the ground in the 120 fm. level cross cut south, towards the flapjack lode, is not quite so favourable as it has been. The lode in the 110 fm. level south is 4 ft. wide, composed of soft quartz, prian, and stones of lead, laying open tribute ground. The flap-jack lode in the 100 fm. level, east of the great cross-course, has not been taken down since last reported on, the wall of which is well defined.

KINGSETT AND BEDFORD.—We have now holed to the deep adit, and are going to drive on the lode again. We are now in a state to set three or four tribute pitches in ground worth from 5*s.* to 7*s.* 6*d.* in 1*l.*, with 40 fathoms good backs; the rise, 150 fms. south, is progressing, and daily a change of ground is taking place; when we rise a few fathoms further, we expect to come into the rich bunch of lead seen at the surface; the old leats are clearing up to bring the water in for the crusher. When this is effected, we shall go to market immediately, and continue regular monthly returns.

KIRKCUDBRIGHTSHIRE.—In Stewart's shaft the lode is 6 feet wide, yielding about half a ton to the fm. The lode in the 62 end west is 3 ft. wide, worth half a ton to the fathom; the lode is also worth half a ton to the fathom in the winze over this end; in the 62 east the men are rising against a winze, which we expect they will hole next week; the lode is worth about 5 cwts. of lead to the fathom where they are rising. The lode in the 50 end west has improved again very much; it is now worth half a ton of lead to the fathom.

RIX HILL.—Several tributers have been set to work on the back of the lode in the 17 fathom level.

SOUTH WALES MINES.—At Bodcall, the south, or Frongoch, lode in the deep adit, east of the Rhydnet river, will at this time yield on an average 6 tons of mundic per fm., and some stones of lead, also some copper ore, but not sufficient to put a value on; and the lode is looking more promising for lead than copper. The lode in the winze under the deep adit has been taken down since my last report for 3 ft. wide, and is looking very kindly, producing some good copper and a little lead, but not sufficient to put a value on. We have not yet cut the lode in the shallow level, 10 fms. above the deep adit, but we expect to do so in the course of this week.

SOUTH WHEAL JOSIAH.—*Nov.* 27.—In presenting you with my report of South Josiah, I have much pleasure in stating that, since we commenced working the adit, we have driven about 40 fms. west on a very promising lode, and, since our last meeting, have gone through the bunch of ore which was at that time in the end, and have since then worked the back at 5*s.* tribute for one month; there is still a good branch of ore going up in the back; but, at our last setting, we set a pitch in the bottom of the adit, from which the men are raising some good work; the lode is not so good as it was in the adit level, but is from 2 to 3 ft. wide, producing good stones of ore. An open floor, or case, of water, rising a little with the hill, which we cut in driving about 25 fms. from the mouth of the adit, is draining off a large stream of water, and keeping the end and lode below almost dry—so that it appears we shall not find any difficulty in sinking below the adit. The end is now driving by six men, at 3*l.* 3*s.* per fm.; the lode is from 2 to 2 ft. wide, with a leader of mundic, white prian, with some gray and black copper, from 15 to 18 in. wide—a good looking lode. We have had a man shoding near the Cletten's adit in search of the Hawkmoor lode, but have not succeeded in finding it yet, the top soil being deep to sink through before we come to the fast ground.——*Dec.* 12.—Since my report to the meeting, the lode in the bottom, or winze, is much improved; two other men have asked liberty to join the former party in the same tribute, 10*s.*; they are now working four men; lode 3 ft. wide, saving work, and improving fast going down; looking *keenly*, with the *keen* in it; the end is much the same.

SOUTH WHEAL TRELAWNY.—The engine-shaft is sinking by nine men; the ground is still favourable, and composed of a deep blue killas strata; it is much the same as it has been for some time past, but we cannot sink so fast, on account of our lift being long and heavy. Everything is in a regular course of working.

TRELAWNY.—In the 82 fm. level end, north of Phillips's shaft, the lode is 2 ft. wide, worth 5*l.* per fm.; in the 82, south of ditto, the lode is 2 ft. wide, worth 7*l.* per fm. In the 72, north of ditto, the lode is 2½ ft. wide, worth 8*l.* per fm.; in the 72, south of ditto, the lode is 1½ ft. wide, worth 6*l.* per fm. In the 62, north of ditto, the lode is 3½ ft. wide, worth 9*l.* per fm. Trelawny's shaftmen are still employed cutting plat and driving cross-cut towards the lode in the 82 fm. level, which is now in 3 fms. 5 ft. In the 72 end, north of Trelawny's shaft, the lode is 5 ft. wide, worth 10*l.* per fm.; in the 72, south of ditto, there is no alteration since last report, the men being employed rising against a winze. In the 52, north of ditto, the lode is 2½ ft. wide, worth 9*l.* per fm. At the north mine, in the 55 end, north of Trehane, the lode appears to be changing, and the ground easing. We now hope to progress much faster in this end than for some time past. The 40 end, north of Smith's, is in disordered ground; but we are of opinion we shall have a change in a short distance, as the lode bears a very promising appearance in the level above. The stopes, on the whole, are producing much as heretofore.

TRELEIGH CONSOLS.—The 125 fm. cross-cut, at Garden's, driving towards the lode, ground hard. In the 100, west of Garden's, the lode is 2 ft. wide, with stones of ore. In the 90, west of ditto, the lode is 20 in. wide, with stones of ore. In the 80, west of the cross-cut, the lode is 2½ ft. wide, and worth 22*l.* per fm.; in the 80, west of ditto, on the south part, the lode is 15 in. wide—poor. In the 70, west of Garden's, the lode is 3 ft. wide, with good stones of ore. At Wheal Parent, in the 40, east of the engine-shaft, the lode is 2½ ft. wide, with good stones of ore, and looking kindly; we have 3 or 4 fms. more to drive to get under the ore ground in the 30 fm. level; in the 40, west of ditto, the lode is 2 ft. wide, with stones of ore, and looking very kindly; the 40 cross-cut south is driving towards the middle lode. In the 36, east of the engine-shaft, the lode is 2 ft. wide, and worth 3*l.* per fm. In the winze below the 30, the lode is 3 ft. wide, and worth 22*l.* per fm.; this winze is 3 or 4 fms. before the present 40 fm. level east. In the 30, west of the engine-shaft, the lode is 2½ ft. wide, with stones of ore. At the middle lode, in the adit east of Nicholson's shaft, the lode is 15 in. wide, and worth 2*l.* per fm.

WEST WHEAL JEWEL.—In the 85 fm. level, west of Williams's cross-course, on Wheal Jewel lode, the lode not taken down in the past week—when last taken down, worth 5*l.* per fm. In the 70 fm. level west, on the same lode, lode when last taken down worth 20*l.* per fm. In the 57 fm. level west, on the same lode, lode not taken down in the past week. In the 47 fm. level east, on the same lode, lode not taken down in the past week—when last taken down worth 5*l.* per fm. In the deep adit west, on the same lode, the men have been cutting winze plat, previous to sinking winze below the level on Williams's flookan. In the deep adit, west of Tregoning's shaft, on Tolcarne tin lode, lode producing stones of tin. In the 12 fm. level, west of Tregoning's shaft, on the same lode, lode producing some tin work, with a promising appearance. In the stopes in the back of the 12 fm. level, west of Pryor's winze, on the same lode, lode worth 14*l.* per fm. In the stopes, east of this winze, in the back of the same level, lode worth 12*l.* per fm. In the stopes in the bottom of the 12 fm. level, east of Tregoning's shaft, on the same lode, lode worth 26*l.* per fm. In the stopes in bottom of this level, west of Tregoning's winze, on the same lode, lode worth 22*l.* per fm. These stopes are working on tribute.

WHEAL ANDERTON.—The lode in the 90 fm. level is much improved since my last communication, it is now getting out the ore ground we had to the west of the cross-course in the upper levels (the 70 and 80), where we are raising the greatest part of our tin from; the character of the lode in itself is precisely the same as above. The lode in the 90 east is kindly to produce tin, but not rich at present. We expect soon to cut the north lode in the 80, to the east of the great cross-course we have had to contend with, being through it, and in a beautiful stratum of ground congenial for tin. The other parts of the mine are just as they have been of late; we are daily expecting to cut the lode west of the slide in the 60 fm. level. I shall forward samples on Monday next to ascertain the price for 5 tons, nearly ready for sale.

WHEAL GRENVILLE.—We have cut the lode driving south from the engine-shaft. I have already informed you that there is very good tin in the lode, but where we have now seen it in the 15 fm. level we have a rich branch, or lode, of copper ore. We have it, in the bottom of the level, 1 ft. wide; some of the stones have been assayed: No. 1 made a produce of 62¼ per cent.; No. 2 produced 51. Of course we shall extend the level east and west as fast as possible. It has raised the mine in the estimation of Cornish miners some thousands of pounds since last week. The lode in the shaft is still large and promising, and I expect, in sinking a few fathoms more, we shall have a course of ore in this lode also. The engine continues to do its duty well.

WHEAL MARY ANN.—Pollard's shaft is sunk 7 fms. under the 50 fathom level. The lode in the 50 fm. level, north of this shaft, is 3 ft. wide, worth 10*l.* per fm.; in the same level south, the lode is 1½ ft. wide, and worth 4*l.* per fm. The lode in the 40 fm. level south is 2 ft. wide, and worth 4*l.* per fm. The lode in the 30 fathom level, south is 1 ft. wide, but is at present unproductive. The lode in the 15 fm. level south is 1½ ft. wide, composed of gossan and can. The lode in the 6 fm. level, south of Barratt's shaft, is 3 ft. wide, worth 10*l.* per fm. The lode in the 50 fm. level south is 3 ft. wide, worth 9*l.* per fm. The stopes throughout the mine are looking well. We shall sample on to-morrow (Tuesday last), two parcels of lead ore, computed together 130 tons.

WHEAL PENHALE.—We have commenced driving at the 30 fm. level north and south, but have not yet taken down the lode at either point, whilst, in driving by its side, we find very good stones of copper. The lode in the north end, at the 20 fm. level, is improved this week, and looks very promising, yielding very good work, but in the south end I find but little change. We are daily expecting to hole the middle shaft to the 10 fm. level, in which the lode is large and promising, but not rich. I have not yet been able to set the new tribute pitches, the tutwork men not being quite far enough out of the way. The present pitches look better than when last reported on.

— In reporting of this mine to-day, I beg to inform you the necessity of our getting the ends north and south in the 30 fm. level a few fms., to be out of the danger of the shaft, as quick as possible, has rendered the taking down of the lode here, up to this time, rather impracticable, but shall do so ere another week closes. But little has been done in the north end (20 fm. level) this week, having had to engage the men in repairing the adit level, which was injured by the heavy falls of rain. I have set the men in the south end, in this level, to cross-cut west, being convinced, from dialling this and the other levels, that the main lode is in that direction, and the one which we have been driving on for some few fathoms is but a side branch. We have holed the middle shaft to the 10 fm. level. On Monday next, we shall sample the copper ores, 18 tons, and the lead will be sampled in a day or two, which will be about 32 tons.

WHEAL SARAH.—We have pitched to-day to drop our lift into Mayhew's shaft, and hope by Monday to have the shaft in course for sinking. Our pay and survey day was on Saturday last. I beg to hand you a report of our setting for December month. The 20 fm. level north, by two men, at 2*l.* per fm.; the end now poor, but still a very kindly lode. Two backs, to stope south of the engine-shaft, by four men, at 16*s.* per fm.; the lode now in sight is worth 5*l.* per fm. A rise, south of the engine-shaft, by four men, at 3*l.* 10*s.* per fm. Two men to stope north of the engine-shaft, at 1*l.* 5*s.* per fm.; the lode now in sight is worth 6*l.* per fm. We intend to put four men next week to break lead between the 20 and 30 fm. levels; the lode now in sight is worth 12*l.* per fm. Our stamps are turning out very good work for silver-lead. The flat rods from the water-wheel went to work last week, and forked the water from the 20 to the 30 fm. level, which is the bottom of the mine, in eight hours. Our steam-engine works well, and all things are in a good course of working.

WHEAL VINCENT.—I have just come from underground, and am happy to state that in sinking a winze between Nos. 1 and 2, the lode continues to hold down very good work. In driving west from the bottom of the engine-shaft the lode has been somewhat disordered by a cross-course, but is now taking its regular course, producing some very good work. In driving west of No. 3 shaft, we have taken down no lode since last reported, but shall commence doing so this day. The stopes in the back of the adit level are also producing some moderate work. In stoping the bottom of the adit level we are breaking some very rich work. In driving to cut the north lode the ground still continues favourable, with a good deal of water proceeding from the end.

FOREIGN MINES.

GUADALCANAL SILVER MINES.—The following is an extract from a letter, dated Nov. 26, from Mr. Shaw, superintendent:—I am happy to say, that in the stopes in the back of the 51 fm. level we have met with a small bunch of ore, of a quality far superior to any we have yet raised in a quantity. The grey antimonial silver ore is interlaced with thin plates of the rich ruby blende, a sulphuret of arsenic and silver, and the pronstite of mineralogists. We have about 2 tons of clean ore, part of which having been bucked down, I have assayed, and it gives 612 ounces of silver to the ton, whilst a small quantity separated, as containing the rich ore in greater quantity, gives 1057 ozs. of silver to the ton. A specimen of the ruby blende gave 52 per cent. of silver, and I imagine it is this quality ore, and not the grey antimonial ore, that the mine has produced in greater abundance. We are making every preparation for sinking our next lift from the 92 to the 104 fm., &c.

LINARES MINES.—The following has been received from Mr. H. Thomas, dated Linares, Nov. 30:—Since my last, with Capt. Curry's report, we have been engaged in clearing up the engine-shaft and cross-cut, and the top of the shaft over the Calavera winze, preparing the whim and other work, which does not enable me this week to add to the information already furnished with respect to the mine. We hope soon to be able to see more of the 30 fm. level eastward, where the workings are said to be very large, and the lode even more productive than west of the engine-shaft; and we are anxious to do this as soon as possible, for our guidance with respect to our future shafts. The engine is keeping the water at present at about nine strokes per minute.

MINERAL COURT MINING COMPANY.

At a meeting of adventurers, held at the mine, on the 3d inst., the accounts were examined and passed, showing—Balance last account, 132*l.* 19*s.* 5*d.*; labour cost and merchants' bills for June, 266*l.* 4*s.* 3*d.* ditto July, 212*l.* 19*s.* 7*d.*; ditto August, 202*l.* 12*s.* 3*d.*; ditto Sept., 140*l.* 11*s.* 11*d.*; ditto Oct., 188*l.* 8*s.* 11*d.*; = 1143*l.* 16*s.* 4*d.*—By loan, 300*l.*; calls, 300*l.* 12*s.* 6*d.*; tin sold, 114*l.* 11*s.* 8*d.*—leaving balance against the mine, 428*l.* 12*s.* 2*d.*

Mr. Munt having offered to attach his patent steam generator to the engine at his own expense, if it did not answer, and at a fair remuneration if it did—it was resolved, that the offer be accepted. A report from the purser was read, stating that the late agent, Capt. Webb, had been appointed managing captain to the Great Polgooth Tin Mine, and that the services of Capt. Dale had been secured instead; that the expenditure for Nov. and Dec. would be about 700*l.*, and that Lady Greville had liberally signified her consent to reduce the dues to 1-18th.—A call of 3*l.* per share was made, and the following report, from Captain John Webb, was read:—

Dec. 3.—Having to-day inspected this mine, I beg to hand you the following report:—Since the last meeting of the adventurers, the 20 fm. level has been driven west about 18 fms. to, and communicated with, the winze sunk from the 8 fm. level, but the lode has not yet been all cut through for the 18 fms. at the 20 fm. level; where it has been cut into it is very large, producing good work for tin: there is also a good lode in the winze. It is now evident that there are large quantities of rich tin from the engine-shaft to this winze, to be taken out in the back of the 20 fm. level. You will be ready now to set tribute pitches and realise some good returns of tin. The lode at present in the 8 fm. level west is large, but not rich: I have but little doubt but there will be a good lode there after driving 7 or 8 fms., which will take the new run of tin cut in the adit level, where, for the last 5 fms., they have driven through a tolerably good lode; there is still a very promising lode in the adit end, which is now being driven as a tribute pitch. By the discovery of this tin extending east, it has enhanced the value of the mine considerably. My opinion of this mine is equally as favourable as formerly. I am fully persuaded that, if the mine is sunk and opened to some extent, it will make a good and great tin mine.

The following report, from Capt. John Dale, was also read:—

Dec. 3.—In presenting my report of this mine, I beg to notice, in the first place, that the adit level is now extended east a distance of 45 fms.—the lode is still maintaining its regular course. For the last 5 fms. behind the present end it has proved productive of tin; its size is about 15 in., and is worth 8*l.* per fm. The 8 fm. level is now extended a distance of 40 fms. from the engine-shaft—the lode averages much larger, and more productive of tin at this level than at the adit, although the present end is rather poor, which is nothing unusual in the most productive tin lodes. A winze is now sunk from the bottom of this level down to the 20, which has greatly facilitated the workings from its ventilation; the lode has been taken down for about 5 fms. in the winze, and its value is about 10*l.* per fm.; the bottom level is now extended 27 fms.; we have cut into the lode in it in various places, and find it still large and more productive of tin than at the other levels. Judging from its appearance, its large size, regular course, and the very congenial stratum of ground in which it is imbedded, I think it almost precludes a doubt that it will, when sufficiently explored, yield an abundance of tin.

TAVY CONSOLS MINING COMPANY.

At a meeting of adventurers, held at the mine, on the 4th inst., the accounts were examined and passed, showing—Balance last account, 102*l.* 16*s.*; labour cost for Sept., 128*l.* 6*s.* 4*d.*; ditto October, 132*l.* 8*s.* 10*d*; merchants' bills, 51*l.* 3*s.* 8*d.*; dues, 30*l.* = 444*l.* 8*s.* 10*d.*—By ore sold in August, 111*l.* 4*s.* 6*d.*; ditto Sept., 82*l.* 8*s.*; cash for 100 tons mundic, 20*l.*—leaving balance against the adventurers, 230*l.* 16*s.* 4*d.* It was resolved,—That the purser write to G. Strode, Esq., on behalf of the shareholders, thanking him for having remitted the balance of his dues; that the forfeited shares of those who paid-up their calls within a week be restored; and that all shares on which any calls remained due to be forfeited. Messrs. Rendle, Hitchins, Marshall, Clemo, and Capt. Ormond, were elected the committee for the ensuing two months. It was not considered necessary to make a call at the meeting, as there was a bill due for October ore, amounting to 105*l.* 11*s.* 5*d.*, and Nov. ores would probably realise 130*l.*, besides mundic; the purser was in hopes the mine would pay its way, but if in the current two months the ore raised was not sufficient, he recommended a call of 5*s.* per share at the next meeting.

The following report, from Capt. William Goss, was read:—

Dec. 3.—In presenting you with my two-monthly report, I beg to inform you that we have driven the 46 fm. level, west of the cross-course, since last general meeting, 4 fms. 1 ft. 9 in., where the south wall continues regular and well defined, underlaying about 2 ft. in a fathom. Not being satisfied that this was the main lode, by the consent of your committee, we commenced to drive a cross-cut north, which we have driven 5 fms., in favourable ground, congenial for copper ore, having occasionally small veins of spar, interspersed with spots and strings of ore; and as the water is still issuing from the end, and the ground becoming more mixed up with capel, I hope soon to come in contact with the other lode: this end is driving by six men, at 5*l.* 10*s.* per fathom. The 46 fm. level south, on the cross-course, towards the wheelpit lode, has been driven 10 fms. 2 ft. 2 in.—the ground has been very favourable, and at times producing good stones of ore. In driving the last 2 fms., the water has become strong, and I anticipate we shall soon come in contact with the wheelpit lode; this end is driving by two men, at 42*s.* per fm. We have also commenced to drive the 46 fm. level east of the engine-shaft; here our progress has not been so rapid as I could wish, the ground having been very hard for exploring; nevertheless, this end will warrant almost any reasonable outlay, the lode being from 8 to 9 ft. wide, composed chiefly of spar, interspersed with small portions of white mundic, fluor-spar, and occasionally good stones of copper ore, yet not in quantity enough to save; but as the tributers in the bottom of the 36 fm. level are breaking some good work, I hope soon to see it a productive level. This end is driving by 4 men, at 12*l.* per fm. We have also commenced to drive a cross-cut south in the 24 fm. level, west of Jinkin's rise, where there are branches of good saving work, from 4 to 8 in. big, dipping south. These branches, I anticipate, will continue until we reach the south point, or rather the south lode, as we have two distinct lodes running parallel with each other in the 12 fm. level, and have not been able as yet to discover that they have come together between the 12 and 24; in driving this cross-cut 2 fms., I calculate, from what can be seen in the 12 fm. level, to cut the south lode, where, from present indications, we may reasonably expect to find it productive. Driving by three men, at 3*l.* per fm. We continue to drive the 12 fm. level west of Jinkin's rise, on the north lode; this end will produce from 15 cwts. to 1 ton of ore per fm., and leave tribute ground. Driving by two men, at 3*l.* per fm. In the tribute department we have four pitches working, by 18 men, at 12*s.* 6*d.* in 1*l.* The ore is not high-priced, being much corrupted with mundic—nevertheless, it will develope the mine.—For October ores you will see the financial account; Nov. ores will be sampled to-morrow, computed 38 tons. From present appearances we shall sample from 40 to 50 tons for Dec. The machinery is all in good order.

WHEAL BASSET MINING COMPANY.

At a meeting of adventurers, held at the mine, on the 4th inst., the accounts were examined and passed (a statement of which appeared in our last Number), leaving balance to next account, 270*l.* 10*s.* 4*d.* It was resolved to purchase a new engine as soon as possible to replace the old engine, and Mr. R. Hand was appointed agent to the mine, at a salary of 6*l.* per fm.

The following report, from Capts. W. Richards, T. Richards, and J. Pope, was read to the meeting:—

Dec. 4.—Dennis's shaft, on Williams's south lode, is completed to the adit level, and being cut down below it:—the granite rock being very hard, to make the shaft its proper width requires more labour than was anticipated. The ores and "deads" can be drawn through this shaft as deep as the 30 fm. level. In the adit level, east of Dennis's, the lode is 15 in. wide, and worth 8*l.* per fm. In the 10 fm. level, east of Dennis's, the lode is 18 in. wide, and worth 10*l.* per fm. In the 20 fm. level, east of Dennis's, the lode is 12 in. wide, and worth 15*l.* per fm. In the 30 fm. level, east of Dennis's, the lode is 12 in. wide, and worth 8*l.* per fm. In the 40 fm. level, east of Dennis's, the lode is 15 in. wide, and worth 12*l.* per fm. The winze below the 40 fm. level (immediately over the 50 end), is worth 30*l.* per fm. In the 50 fm. level, east of Dennis's, the lode is 18 in. wide, and worth 15*l.* per fm. In the adit level, on Williams's lode, east of Dennis's shaft, the lode is 3½ feet wide, fine gossan, and very promising, being inexpensive for driving. In the 20 fm. level, east of Dennis's, the lode is 2½ ft. wide, gossan and prian. In the 40 fm. level, east of Dennis's, the lode is small and poor, in hard ground. In the 50 fm. level, east of Dennis's, the lode is 18 in. wide, and worth 6*l.* per fm. In the winze sinking below the 70 fm. level, the lode is 3 ft. wide, and worth 6*l.* per fm. In the 90 fm. level, east of the cross-course, the lode is 4 ft. wide, consisting of fluor-spar, prian, mundic, and stones of grey ore—very promising for copper most of the distance. In the 110 fm. level, on Theaker's lode, west of the shaft, the lode is 18 in. wide, and worth 2*l.* 10*s.* per fm. The winze sinking below the 100 fm. level is in tribute ground. In the 60 fm. level, west of Theaker's, the lode is disordered by a cross-branch, and poor. In the 100 fm. level, on the Great lode, west of the cross-course, the lode is 3½ ft. wide, prian and quartz—ground very easy for driving; in the 100 fm. level, east of the cross-course, the lode is very hard and poor. In the 60 fm. level, west of Rosewarne's shaft, the lode is 3 ft. wide—poor. In Hand's winze, sinking below the 50 fathom level, the lode large and unproductive. Richard's engine-shaft, sinking below the 60 fm. level, south of the lode, is down 5 fms. In the winze sinking below the 40 fm. level, on Giesler's lode, the lode is worth 6*l.* per fm., composed of gossan and yellow ore. In the 50 fm. level, on Lloyd's lode, west of the old engine-shaft, the lode is 18 in. wide, and worth 6*l.* per fm. The winze sinking below the 50 has been sunk in moderate tribute ground, and the lode in the present winze small. The rise above the 50 is nearly high enough for the 40 fm. level, when we purpose driving west over a fine lode, driven through in the 50 fm. level. In the 75 fathom levels, on Carnkie part, driving east and west of the shaft, the lode is 3 ft. wide, producing good stones of grey ore, and are very favourable for copper in depth, with very little tin. In the 65 fm. level, west of Sampson's lode, the lode is 3 ft. wide, producing tinstuff of low quality. The boundary shaft is holed to the 35 fm. level, the sinking of which has been in "sett ground," and the lode not previously broken, being rich for tin. The 15 fm. level is driving north in search of branches that produced a large quantity of tin at and above the 45 fm. level. Bickford's shaft, on North Basset lode, is holed to the adit level; we are driving north on a cross-course to intersect some branches seen in the cross adit 100 fms. west, which was driven in a poor channel of stratum. In the adit driving east of Bickford's shaft, the lode is 2 ft. wide—poor. In the cross-cuts being driven since the last account meeting—namely, the 70 fm. level, south of Williams's lode; 70 fm. level, north of Great lode; 50 fm. level, south of Rosewarne's shaft; 50 fm. level, north of Williams's shaft; 110 fm. level, south of Theaker's shaft; and 20 fm. level driving south of old engine-shaft—no lode has been discovered except a branch, about 3 in. wide, 3 fms. behind the 20 end driving south towards Lloyd's lode. The stopes in the backs of the 10, 20, 30, and 60 fm. levels, on Williams's lodes, continue without alteration to produce a good quantity of fair quality grey ore, being 16 men, or four men in each stope.

WHEAL CONCORD MINING COMPANY.

A meeting of parties interested in the winding-up of this enterprise was held, on Tuesday last, at the Cornwall and Devon mining offices, King-street, Cheapside—Mr. MORRISON in the chair,—and from the proceedings, which extended over nearly three hours, it appeared that a petition to wind up the affairs had been served on Mr. G. W. Snell, of Callington, the purser of the mine, which had turned out an unproductive speculation, and that it stood for adjudication before Vice-Chancellor Knight Bruce on the 14th inst. As the expense of the proceedings before the Master in Chancery would be heavy, and fall on all the shareholders, the purser now appealed to them to come forward with an equitable contribution to defray outstanding liabilities, amounting to 327*l.* 8*s.* 11*d.*, and so avoid the expense of an inquiry and proceeding in Chancery. As there appeared to be no objection on the part of the meeting to this, provided the purser would give a clear account concerning the specific appropriation of a sum of 518*l.*, resolutions, after some lengthy observations from Messrs. Bridgeman, Pocock, Keddel, Crofts, and others, were passed, calling upon the purser to make out a full statement of receipt and expenditure from the commencement of the undertaking, and instructing the committee of liquidation to endeavour to induce the parties, on payment of their costs, which was estimated would amount to about 30*l.*, to postpone the prosecution of the petition before the Vice-Chancellor, until the account was ready. The meeting then adjourned, to await the purser's accounts.

WHEAL MARY MINING COMPANY.

At a meeting of adventurers, held at the mine, on the 12th inst., the accounts were examined and passed, showing—Balance at last account, 503*l.* 17*s.* 2*d.*; labour cost for Sept., 638*l.* 9*s.* 3*d.*; ditto Oct., 545*l.* 7*s.* 3*d.*; merchants' bills, 342*l.* 7*s.* 5*d.* = 2030*l.* 1*s.* 1*d.*—By ores sold (less dues), 1117*l.* 5*s.*; leaving balance against the mine of 912*l.* 16*s.* 1*d.*—A call of 10*s.* per share was made payable forthwith, and the following report was read:—

Dec. 12.—Since last account we have sunk the engine-shaft to the 90 on Wheal Mary lode, and cut the lode, and are now driving east and west on it; east, the lode is about 2 ft. wide and poor; west, about 1 ft. wide, with a branch of ore on the north part, about 4 in. wide, and looking kindly. In the 70 and 80 fm. levels east the lode is poor. In the 50 fm. level east the lode is about 3 ft. wide, and will produce 2½ tons of ore per fm.; in this level we have driven through a good orey lode for about 15 fms. In the 50 fathom level, east and west, the Parent lode is poor. In the 40 east this lode is about 3 feet wide, producing about 2 tons of ore per fm.; we have had a good orey lode in this level for about 40 fms.; in the stopes in the back of this level the lode is about 2 ft. wide, and will produce 3 tons of ore per fm. for 15 fms in length. In the 30 fm. level east the lode is about 18 in. wide, and will produce 2 tons of ore per fm. In the 20 fm. level east the lode is about 18 in. wide, and looking kindly for making ore. In the 12 fm. level west the lode is about 1 ft. wide, producing about half a ton of ore per fm. We have 15 tribute pitches at work, at an average tribute of 7*s.* 10*d.* in the pound. We sold on the 8th of November last 100 tons 7 cwts. 2 qrs. of ore, which realised 540*l.* 5*s.* 1*d.*; and on the 6th inst. 134 tons 18 cwts. of ore, realising 622*l.* 18*s.* 1*d.*, averaging 4*l.* 19*s.* per ton.

WHEAL SETON MINING COMPANY.

At a meeting of adventurers, held at the mine, on the 10th inst., the following statement of accounts was examined and passed, and a dividend of 5*l.* per share declared:—

1849—Amount of costs for September			£1107	6	2	
" " October			1099	16	1	
Merchants' bills			587	9	6	—2794 11 9
Sept. 6—Copper ore sold			1990	1	11	
Oct. 4— " "			1511	7	11	
			£3501	9	10	
Less 1-15th dues (Trevornoe)			233	8	7	
			£3268	1	3	
Oct. 4.—Copper ore sold	£160	14	3			
Less 1-15th dues (western ground)	10	14	3	150	0	0—3418 1 3
Showing profit						£ 623 9 6
Balance of last account						588 16 6
						£1212 8 0
Dividend, at 5*l.* per share						990 0 0
Balance to next account						£ 222 8 0

The following report, from Capts. P. Raby, S. Lean, and J. T. Phillips, was read to the meeting:—

Dec. 10.—The cross-cut in the 110 fm. level, at Bull's shaft, has been extended north nearly 7 fms; we calculate we have 7 fms. further to drive to cut the north and south caunters and Kneebone's branch; at this level we are engaged cutting a trip plat at the 100 fm. level, which will delay our sinking Bull's shaft under the 110 for about a month. At the 100 fm. level west we have intersected the north caunter, and driven on it from 3 to 4 fms.; we are carrying about 5 ft. of the lode, which will produce about 6 tons of ore per fm. It will be recollected that the 90 fm. level over this place was poor. In the 90 fm. level west the lode will yield 6 tons of good ore per fm., with every prospect of a further improvement; 14 fms. behind this end we have commenced sinking a winze; the lode is large, producing 3 tons of ore per fm., and improving in sinking. In the 80 fm. level west the lode is 2½ ft. wide, containing stones of ore. We have two stopes in the back of this level (which are full 18 fms. behind the end), one producing 16 tons and the other 8 tons of ore per fm.; in stripping down the lode on the north wall we discovered a large branch going back north of the north caunter, which will produce 5 tons of ore per fm. There are two winzes sinking below the 80 fm. level—the eastern winze is down 4 fms.; the lode, for the first 3 fms., produced 4 tons of ore per fm.—the last fathom has been disordered by a slide, but when free from that influence, it will no doubt resume its former productiveness; the western winze (which is seventh fathoms before the 90 fm. level end) has been sunk 6 fms. through a lode that will produce, on an average, 10 tons of ore per fm. In the 70 fm. level, west of Tilly's, the lode is 5 ft. wide, composed of spar and capel. Tilly's sumpmen, in the past month, have been employed in fixing a balance-bob, plunger-lift, &c., and this being completed, we shall now resume sinking. The 60

fm. cross-cut, north of this shaft, is extended 36 fms., the ground is favourable. The ground in the 60 fm. cross-cut south is also favourable. In the 80 fm. level west, on the south caunter, the lode is 3 ft. wide, composed of spar, mundic, and stones of ore. In the 100 fm. level west, on Kneebone's branch, the lode is 4 ft. wide, producing 2 tons of ore per fm. In the 90 fm. level west the lode is 5 ft. wide, and will yield 4 tons of ore per fm. The lode in the winze sinking below this level has produced 5 tons of ore per fm. for the last 5 fms.—it will now produce 3 tons per fm. The lode in the winze sinking below the 80 fm. level is large, but contains only occasional stones of ore. The lode in the new shaft, sinking below the 13 fm. level, is 1 ft. wide, containing a little ore; the water being quick, we shall desist from sinking until the ground is drained by the 44 fm. level. In driving the 44 fm. cross-cut south we cut several bunches where we supposed the new lode should be, and have opened on them about 3 fms. east; they are composed of spar and prian. The 64 fm. cross-cut has been extended 12 fms. south from Cock's engine-shaft; we have about 12 fms. further to drive to intersect the last-mentioned lode, which we hope to see in four months. The ground at the north cross-cut, in the same level, is rather harder for driving. During the last two months we have sampled and sold about 1220 tons of ore, which we anticipate will leave at our next account a profit of about 1800*l.*

WHEAL TREMAYNE MINING COMPANY.

At a meeting of adventurers, held at the offices, George-yard, Lombard-street, on the 12th inst., the accounts were examined and passed, showing—Balance last account, 376*l.* 4s. 10d.; copper ores sold, Oct. 11, 346*l.* 14s. 6d.; black tin, Oct. 16 and 20, 455*l.* 2s. 8d.; copper, Nov. 8, 405*l.* 2s. 3d.; black tin, November 23, 916*l.* 19s. 8d.; ditto December 10, 705*l.* 2s. 7d. (less lord's dues, 1-40th, 70*l.* 14s. 7d.)=2829*l.* 1s. 8d.; West Wheal Providence water charge, 24*l.*; carriage of tin 24*l.* 6s.; tributers 2*l.* 12s. 3d.=3185*l.* 10s. 2d.—By labour cost, September, 973*l.* 10s. 11d. merchants' bills, 204*l.* 1s. 5d.; labour cost, October, 879*l.* 15s.; merchants' bills, 198*l.* 8s. 11d.=2255*l.* 16s. 3d.—leaving balance in favour of the mine, 929*l.* 13s. 11d.; from which deduct dividend 10s. per share, 512*l.*—leaves in hand, 417*l.* 13s. 11d. It was resolved that in future the meetings shall be held at the mine and the London offices alternately, and that the purser be instructed to carry out the arrangements between the two companies for the erection of machinery, and to purchase whatever is necessary to complete it, and to have agreements drawn up equitable to both parties. The following report from Capts. R. M. Bryant, J. Phillips, and R. Williams, was read to the meeting:—

Dec. 7. -Wheal Margaret shaft is sunk 9 fms. below the 80 fm. level—lode 2½ ft. wide composed of flookan, quartz, and mundic, spotted with ore. In the 80 fm. level east the lode averages 2 ft. wide—opening tribute ground. Painter's shaft is communicated to the 30 fm. level, and the men are engaged cutting plat, which will be completed in a few days, when we shall be in a position to set pitches in the back of the 30 fm. level on copper ore. Thomas's shaft is sunk 3 fms. below the 30—lode small. At Madern's shaft, in the 60 fm. level west, the lode is 1½ ft. wide, worth 8*l.* per fm. The winze in the bottom of the 50 fm. level is worth 8*l.* per fm. In the 70 fm. level west we are opening tribute ground; the 70 east is worth 4*l.* per fm. Laurie's shaft is suspended in consequence of the surface water; Wallis's lode is intersected in the bottom of this, where it has a promising appearance; we are making preparations for raising this shaft from the 30 fm. level. The 30 fm. level west, on the north lode, is suspended until the shaft can be got down—lode 1½ ft. wide—tribute ground. The 53, west on Allen's branch, at the new shaft, is worth 6*l.* per fm.; the ground still continues very hard; the 53, west of flookan, or Allen's branch, is worth 12*l.* per fm.; the 53, west on the engine lode, is unproductive. Allen's shaft is sinking on Allen's branch; in this we have had a layer of quartz which has disordered the branch, previous to which it was worth 25*l.* per fm. for 8 fms.; this will be communicated with the 53 fm. level shortly. The 45 fm. level, east on Allen's branch, is worth 5*l.* per fm.; the 45 west is worth 8*l.* per fm.; the 45 west, on the north lode, is opening tribute ground. The new engine-shaft in the boundary is sunk 9 fms., and is progressing favourably. Our tin department continues to look well. Some falling off in the copper ore may be expected; yet, on the whole, we hope to do as well for the next two months as we have done in the two former.

MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

DOLCOATH.—The prospects of this mine are, upon the whole, improving.

WHEAL GOLDEN.—From this mine 38 tons of lead ore were sold on the 8th inst., at 12*l.* 12s. per ton, making 140 tons in the last three months. A company commenced reworking this sett about 12 months since, after it had remained idle upwards of 21 years! Having forked the water to the 60 fm. level in June last, they have succeeded in getting the above from the backs of the old levels, with about 50 tons more on the floors; this, considering the men of old worked the mine upwards of five years without sinking is more than was expected. In the last week they have cut the lode in the 70 fm. level (commenced sinking in July), and the captain reports the lode there to be "very superior to any of the levels above." We understand the ore and country is similar to that of East Wheal Rose Mine, from which it is distant about four miles. Wheal Golden Mine is divided into 358 shares, and the adventurers have just taken Penhale sett south of Wheal Golden, on the same lode, about two miles in length, and East Wheal Golden (a parallel lode about 100 fathoms distant), on which they intend to commence operations next spring.

WHEAL MAY.—Mr. C. S. Richardson informs us that the agent reports the lode to hold down even richer than it was at surface, a small specimen of which has been sent up to the office; it contains a very high per centage for silver and copper; they are driving on the course of the lode, and raising a fair pile of work. On Saturday, four men got to grass about 1½ ton of ore, worth 40*l.* per ton. Surface erections are progressing, and everything appears very favourable.

WHEAL RUSSELL.—The lode in the 16 end east is considerably improved; the tin broken, or at least the richer portion, is being placed in sacks underground, as it is almost fit for market without dressing at all. About a week ago I requested a respectable mining agent (a friend of mine) to inspect the mine for me, when he reported the lode in the end to be worth full 50*l.* per fm., with his honest conviction that before the same point was reached in the next level, the mine would be paying more than costs, if not dividends. This opinion was fully confirmed at the meeting on Monday, when Capt. A. Barrett, the superintending agent, assured the shareholders present that the call of 10s. per share then made would be the last, and even that was required principally to pay off outstanding claims. Such a favourable state of things cannot fail, ere long, to enhance the price of shares; and my opinion is so firmly attached to that of the party inspecting it for me, that I would not sell for less than 10*l.*

NISTER DALE IRON COMPANY.—A call of 5*l.* per share has been made by Master Farrer on the contributories in this undertaking.

THE APPLICATION OF THE DISC ENGINE TO MARINE PURPOSES.—The Government screw steamer, *Minx*, has been fitted by Messrs. Bryan and Dorkin with a disc engine of 10-horse power, on the same plan as that which is employed with so much success at the office of the *Times*, from which journal we take the following account of an experimental trial made with her on Wednesday last at the measured distance in Long Reach:—"On the average of two runs down and two up, the speed produced by the disc engine was ascertained to be 5·148 knots per hour, the mean pressure of steam being 53·5 lb. on the square inch, and the number of revolutions 164 per minute. The engine has accomplished wonders, considering that it is only of 10-horse power, occupying 5 ft. 2 in. by 3 ft., and fitted to a vessel of 301 tons burden, 130 feet long, and 21 ft. broad, originally constructed to carry engines of 100-horse power, which did not give her any extraordinary degree of speed, even with a considerable consumption of fuel. The 10-horse power disc engine works very economically—about 18 per cent. less than any other of the same power tried with it—an important advantage where 10 days' consumption might be extended to nearly 12 days. It has no dead points, and can be worked with the greatest ease, stopping or reversing instantaneously, and may be made to go forwards or backwards with less than half a turn. As an auxiliary, its advantages will be very great; it is compact, and not liable to get out of order, and is easily managed. On the return of the *Minx* up the river, when at Barking Reach, she steamed up against the tide, and on being moored the engine was opened for examination, and it appeared in most admirable condition, without any symptoms of having worked on one part more than another."

ST. LAWRENCE AND ATLANTIC RAILWAY.—The survey of the line for the extension of the St. Lawrence and Atlantic Railway has been completed as far as Melbourne, and the work of levelling down the road is to commence immediately, and is expected to be finished between St. Hyacinthe and that village by next September. The contractor has leased the road already finished, and all machinery, &c., belonging to it, from the company for three years, at an annual rent of 6000*l.* The St. John's Railway is also to be extended to Rouse's Point, and part of the stock has already been subscribed, and it is supposed that the whole will soon be taken up. This road is already one of the best investments in the country, and this extension of it will add materially to its value, inasmuch as it will connect it with almost all the railways in the United States.

STATISTICS OF THE UNITED STATES.—Mr. Burke has issued his annual report of the produce, imports, and exports of America for 1848, from which we find that the mineral products, including coal, glass, marble, &c., amounted to 33,990,276*l.*—the entire produce of the country having been 474,029,688*l.*, while that of Great Britain was 794,085,848*l.* From the returns of their exports, it appears that our trade to Canada and the West Indies is rapidly declining, while that of the United States increases; for 1848 our exports to Canada amounted to 3,233,014*l.*, and those from the United States, 5,819,667*l.*; and to the West Indies 2,102,667*l.*, and from the United States 3,973,252*l.*

ARRIVALS OF SPECIE AND TREASURE.—The following arrivals have just taken place:—The ship *City of Poonah*, from Calcutta and the Cape, has brought 6 packages of specie; the *Mary Anne*, from Madras and the Cape, 2 boxes of specie; the *Vigilant*, from the Cape, 2 packages of specie; the *Princess Royal*, from Cuxhaven, 1 cask of gold; the *Margery*, from St. Petersburgh, 1754 ingots of copper; the *Land of Cakes*, from Hong Kong, 29 boxes of treasure; the *Cuba*, from St. Petersburgh, 1490 ingots of copper; the *Marmion*, from Hobart Town, 1 case of bullion; the *Quintin Leitch*, from Sydney, New South Wales, 1 box of silver, 1 box of gold dust, and 4 serons of specie; the *Coromandel*, from Madras, Hong Kong, and the Cape of Good Hope, 9 boxes of specie; and the *Clarinda*, from Buenos Ayres, 764 half doubloons, consigned to an eminent firm in the metropolis.

EXPORTATION OF THE PRECIOUS METALS.—The following are the official returns of the exports of gold and silver from the port of London for the last week:—Silver bars to Belgium, 72,000 ozs.; Hamburg, 2467 ozs.; Dunkirk, 20,000 ozs.—Silver coin to Dunkirk, 50,000 ozs.; Hamburg, 2167 ozs.; Belgium, 32,000 ozs.; Rotterdam 12,000 ozs.—Gold dust to Hamburg, 323 ozs.; coin to ditto, 651 ozs.

RAILWAY CONTRASTS.

Authoritative as the declaration may be held to be, that comparisons are odious, they are sometimes indispensable. Indeed, we incline to the opinion, in the main, that very little practical good can be done without them. But leaving to others, or to a more appropriate occasion, the solution of that question in its general application, we feel tolerably confident that we can offer an indisputable exception, were the rule itself established beyond controversy.

Public attention has been very properly directed to the long series of legal proceedings that have arisen out of an accident which occurred in February, 1847, on the Midland Railway, and by which a poor fellow, named Silk, had his leg so shattered as to render immediate amputation necessary. In the first of these actions at law he was the plaintiff; but the company preferred tendering to him 150*l.*, by way of compensation, to running the risk of going into court against conclusive evidence, and unassailable legal assumption; and that sum he prudently and not less honestly accepted. Nothing could be clearer, although preliminary objections had been made—although the injured man had been compelled to apply ungentle enforcements—that, under the ascertained circumstances of the case, Silk had a direct and just claim on the funds of the company, chiefly sustained by the asserted negligence of their servants. But the demands of the innkeeper to whose house he was taken, and of the medical gentlemen who attended on the patient, appeared to afford some chance of being avoided, by virtue of statutory intricacies and judicial doubts.

So the wealthy many contended against the unquestionably equitable claims of the less wealthy few; the machinery of law, after the requisite number of complex movements and perturbative variations, finally indicated decisions against the Samaritan trio, who had sheltered, comforted, and successfully treated the maimed sufferer in this case of railway casualty; and to the unrequited succour and services of those, without whose aid the culpable maiming might have terminated in constructive manslaughter, have been superadded—"the costs of both sides," most oppressive in amount to even the two professional gentlemen, and bringing upon the equally innocent innkeeper the additional infliction of bailiffs' visits. Here, then, we have the dark side of the contrast—the odious by comparison.

Let us now turn to an incident of more pleasurable contemplation—to one alike creditable to all parties concerned—the prudent holder of an assurance ticket, and the liberal grantees of it. We cannot do better than give it in the unstudied language of the communication of Mr. William Good, who describes himself as late of Lymington, and now of Dunstable. He says—"I was travelling by railway from Penrith to Preston, and having occasion to go out of the train at the latter station, by the carelessness of the porter I was led over the edge of the turn-table, and seriously injured on the head and ribs, and three of my teeth knocked out, which laid me up for several days. I had previously effected an assurance against railway accidents with the Railway Passengers' Assurance Company, and when sufficiently able to get to London, I at once gave notice to the officers of that Company, in Old Broad-street, that I had met with an accident. They immediately sent their medical officer to Mullens's Hotel, where I was staying, and, in the course of a few days, was well enough to make my claim in person at the offices of the company. I adduced the evidence of my costs, both for medical attendance in the country and London, and my hotel expenses; and, within three weeks of the day of the accident, received the compensation, which I thought fit to demand, without demur, on the loss of an hour's time." And, in this simple narrative, we have the bright side of the contrast—the praiseworthy by comparison.

Yet our notice of these strikingly opposite occurrences would be incomplete, unless we pointed out to all, however obvious to some, the practical deductions, that the law, as it stands or is administered, is no protection to the poor man when he has the wealthy as his opponent; and that they alone are wise who, whilst insuring against the casualties of railway accidents, as far as their persons and their lives are concerned, may be said to secure themselves, also from those harrassing contingencies of the law, which, besides the substantial denial of justice, are followed by such heavy mulctings of the purse—by positive and heavy loss, and probable ruin.

GREAT WESTERN RAILWAY—THE DIVIDEND.

Great anxiety having been manifested to obtain anything like accurate information as to the position of the principal railway companies, and what is likely to be the amount of the forthcoming dividends, we have great pleasure in being enabled to make the following statement on trustworthy authority:—The receipts of this company for the half-year ending on the 31st inst. (including the balance from the last account of 18,000*l.*, the rents from cottages, and the Bristol and Birmingham line; and calculating the receipts for the next three weeks at 15,000*l.* per week, and there can be no doubt they will amount to that sum, or thereabouts) are estimated to produce 441,200*l.*

The working expenses for the last half-year were 199,691*l.*, including the working of the Bristol and Exeter line for four months, after which the lease expired. The accounts of the latter company to the 30th June give the cost of working for two months at 12,254*l.*, which would make, for four months, 24,508*l.* There can be no doubt that, from the nature of its staff, the Great Western Company would be able to work the line somewhat cheaper than the Bristol and Exeter Company itself; but if we allow a difference of 2500*l.*, which is more than amply sufficient, we shall have 22,000*l.* to be deducted from the expenses of the last half-year, in addition to a saving of 20,000*l.*, which, we are credibly informed, has been effected in the working during the last six months, making a total saving of 42,000*l.*, and reducing the cost of working to 157,691*l.* for the half-year.

If we deduct this 157,691*l.* from the estimated revenue of 441,200*l.* we have a balance left of 283,509*l.*, subject to a charge of 4000*l.* for interest on the capital expended on the completion of that portion of the Wilts, Somerset, and Weymouth line opened to Westbury, and say 75,000*l.* interest on debentures, which will reduce the net revenue to 204,509*l.* This sum will be applicable to the payment of dividends on the paid-up capital, which at the last half-yearly account amounted to 7,834,500*l.*, and has not since been increased.

It will, therefore, be seen that the sum at the disposal of the company would allow of the payment of a dividend of 2½ per cent. for the half-year, the amount required being 195,862*l.*; but as this would only leave in hand, supposing the above estimates all to be correct, 8647*l.*, the probability is that the directors will recommend the payment of a dividend of 2¼ per cent., which will absorb the sum of 176,267*l.*, and leave a balance to be carried to the next account of 28,333*l.*

As at the last half-yearly meeting a dividend of 2 per cent. was declared; this dividend will make 4½ per cent. upon the year—a result which, we believe, will be considered highly satisfactory in the present state of railway property, as tending to show that the owest point of depression has been seen and overcome.

LONDON AND NORTH-WESTERN RAILWAY.—A correspondent of the *Times*, in order to correct the misstatements which have been circulated relative to this property, and place its real value before the public, has submitted a full abstract of the accounts, anticipating what will be laid before the shareholders at the next half-yearly meeting. From the capital account, it appears the total amount raised has been 27,142,635*l.*, of which there has been expended 27,105,813*l.*, leaving in hand 36,822*l.* From the revenue account, it appears that the traffic returns from the 1st July to 2d Dec. was 966,138*l.*; and, averaging the remainder of the half-year at only the same returns as the corresponding period of last year, the whole traffic will amount to 1,140,231*l.*, and the total half-yearly revenue from traffic, interest, rentals, dividends, &c., 1,172,065*l.*, which will pay a dividend of 6 per cent. on the stock, interest on loans, &c., and leave a balance to the next half-year's account of 41,403*l.*

DIRECT EXETER, PLYMOUTH, AND DEVONPORT RAILWAY.—The winding up of this company's affairs came on before the Master in Chancery, Richards, on Saturday, on the petition of Colonel Ellis, Royal Marines, Chatham. It sets forth that the scheme was projected with a proposed capital of 1,000,000*l.*, in 40,000 shares, of 25*l.* each; deposit, 2*l.* 12s. 6d. There were upwards of 100 provisional committeemen on the prospectus. Shares were allotted to such as applied, but the sums paid upon them were too insignificant to meet the liabilities incurred, towards which some of the committeemen paid a sum of 3s. per share, but the majority refused. Mr. Sandeman, of Basinghall-street, has been appointed officicial manager, but cannot proceed with an investigation into the affairs, from the fact of Mr. Floud, the solicitor to the company, having refused to deliver up the books and papers, on which he claims a lien in respect of his bill of costs, amounting to 1500*l.* There are four lists of contributories. The first contains the names of seven of the committee of management, and has been settled; the second, with 39 of the provisional committee, has been partially disposed of; the third comprises the names of other provisional committeemen and allottees; and the fourth, of allottees, 709 in number, who merely received shares on application. No Deed of Settlement having been executed, the question of liability of allottees hinges on payment of deposit.

DIRECT MANCHESTER, LEEDS, AND YORK.—The petition for winding up this company's affairs, before the Master in Chancery (Brougham), is from Mr. H. Dawson, barrister, and states that it was started in September, 1845, with a proposed capital of 800,000*l.*, in 40,000 shares of 20*l.* each, many of which were allotted, but the deposits not being paid, liabilities for preliminary expenses were incurred by the provisional committee, of whom petitioner was one, and who are liable for liquidation of the same unless the allottees are called upon, under the Joint-Stock Companies' Winding-up Act, for a *pro rata* contribution for their discharge. An official manager has to be appointed.

LONDON AND BIRMINGHAM *v.* BUCKINGHAMSHIRE.—The petition for the winding up of this company's affairs before the Master in Chancery, Kindersley, is from Mr. C. Waddy, of Jermyn-street, and represents that the scheme was started in September, 1845, with a proposed capital of 2,000,000*l.* in 100,000 shares of 20*l.* each. The provisional committee consisted of a number of noblemen and gentlemen, who incurred large liabilities in proceeding to Parliament, which have not been met, in consequence of the parties to whom shares were allotted not having paid their deposits. A contribution to pay off the debts was agreed to be made on the provisional committee of 100*l.* each, but not being responded to, recourse is now had to proceedings under the Joint-Stock Companies' Winding-up Act.

YORK, NEWCASTLE, AND BERWICK.—The new directors have adopted the principle of public competition in filling up the appointments on this line. They intimate their intention to receive applications for three general managers—one for the passenger traffic, at 500*l.* per annum; a second, for the mineral traffic, at 400*l.*; and a third, for the merchandise, at 400*l.*, each manager's salary to be increased *pari passu* with the company's profits.

New Patents.

[From the *Mechanics' Magazine* of this day.]

SPECIFICATIONS ENROLLED DURING THE PAST WEEK.

DOUGLAS HEBSON, Liverpool, engineer: For improvements in steam-engines. Mr. Hebson proposes—1. To connect two steam-engines, each having a single crank, and its steam cylinder inclined at an angle greater or less than 45°, by means of a drag-link, or other suitable apparatus, so that one piston may be at the beginning or middle of its stroke, when the other has reached the end of its stroke.—2. He substitutes for the ordinary packing and gland of the trunions of oscillating engines a packing of hemp or flax between the end of the trunion and the shoulder of the steam-pipe, and which is retained there by means of a metal hoop.—3. In order to facilitate the connection and disconnection of marine steam-engines, he employs a hollow crank-pin, within which slides another crank-pin that takes into a plate on the end of the shaft, which forms the other side of the crank, whereby the connection is effected. To withdraw the pin from the plate, and, consequently, disconnect the engines, a toothed wheel is used, turning loosely on the crank shaft, and gearing into another toothed wheel keyed on the end of the inside crank-pin. These wheels are made to revolve by a spur wheel keyed on a moveable axis, so that it may be slidden in or out of gear with the first toothed wheel, as occasion may require. When it is in gear, and rotary motion is communicated by a thumb-piece on the end of the axle of the spur wheel, the inside crank-pin will be withdrawn from the plate.

Claims.—1. Connecting two steam-engines, each having a single crank, and its cylinder inclined at an angle greater or less than 45° by a drag link or other suitable means.—2. The substitution of an exterior packing for the ordinary internal packing and gland in the trunions of oscillating steam-engines.—3. The application of a hollow crank-pin, containing another crank-pin, in combination with a plate and toothed gearing, to facilitate the connection and disconnection of marine steam-engines.

J. HOUSTAN, Nelson-square, surgeon: For improvements in obtaining motive power when steam and air are used. This invention consists in forcing air, at a pressure equal to that of steam in a boiler, through pipes placed in the boiler into a chamber, where it mingles with the steam. The air and steam thus combined are led to a cylinder, and applied to work an engine similar in construction to that of an ordinary steam-engine.

Claim.—The mode of combining machinery for obtaining motive power when air and steam are used.

EDWARD JOHN PAYNE, Chancery-lane, London: For improvements in marine vessels, in apparatus for the preservation of human life; and moulding, joining, and finishing hollow and solid figures, composed wholly or in part of a certain gum, or combinations of certain gums; also for improvements in dissolving the aforesaid gums, and in apparatus or machinery to be used for the purposes above mentioned.—The "improvements in marine vessels, and in apparatus for preserving human life," which form the first head of this multifarious and incongruous title, resolve themselves simply into the construction of a life-boat composed of metal tubes or ribs covered with gutta purcha—a thing achieved long before the date of this patent. The "improvements in moulding, joining, and finishing solid figures," fade away in the specification into a receipt for making gutta percha dolls! "You are to make the doll hollow, and in halves, and then to cement the two halves together, after which you must smooth the ridges left at the junctures with an Italian iron!" The branch of the specification which relates to "gums," contains a number of feasible-enough book receipts, but what the "improvements" consist in, is not stated.

A Waterproof Varnish.—Mix together 1 lb. gutta percha, 3 ozs. gum opal, ½ lb. linseed oil, 1 ozs. sugar of lead, 2 lbs. sprits of turpentine. Place the mixture in a tincture press, the cylinder of which is heated by a sand bath, and the produce is the varnish required.

A Varnish with which Colours may be mixed, and very suitable for Coating Articles in Gutta Percha.—Take 100 lbs. gutta percha, 18 lbs. 12 ozs. gum opal, 50 lbs. linseed oil, 200 lbs. sprits of turpentine, and mix the whole together.

A Varnish for Unpainted Articles in Rough Wood.—50 lbs. India-rubber, 100 lbs. gutta percha, 30 lbs. gum opal, 70 lbs. gum damar, 150 lbs. linseed oil, 75 lbs. sugar of lead, 500 lbs. sprits of turpentine.

A Varnish for Articles of Metal.—100 lbs. gutta percha, 25 lbs. gum opal, 75 lbs. linseed oil, 25 lbs. sugar of lead, 200 lbs. sprits of turpentine.

A Varnish for Brick and Stone.—100 lbs. India-rubber, 200 lbs. gutta percha, 112½ lbs. gum opal, 235 lbs. linseed oil, 62½ lbs. sugar of lead, 600 lbs. sprits of turpentine.

A cement is produced by mixing 1 part of a composition, consisting of 100 lbs. India-rubber, 100 lbs. gutta percha, 100 lbs. linseed oil, 200 lbs. sprits of turpentine, with three parts of some calcinated absorbing oxide of metal (white or red lead).

Claims.—1. The mode of constructing life-boats or vessels, as described.—2. The treating, dissolving, and combining of gutta percha, as described.—3. The use of gutta percha, India-rubber, gum copal, gum damar, shellac, pitch, tar, resin, sugar of lead, white and red lead, and alum, in the manufacture of waterproofing varnishes and compounds, as described.

STANHOPE BAYNES SMITH, Birmingham, electro-plater and guilder: For improvements in depositing metals and in obtaining motive power, part of which improvements are applicable to certain other similar useful purposes. Mr. Smith describes and claims 1. The dissolving of salts of silver in hydrocyanide of potassium, calcium, ammonia, barium, strontium, aluminum, or magnesium, to produce solutions for plating, either with or without the employment of electric currents.—2. The use of silenuret of calcium, iodine, iodide of nitrogen, gun cotton or xyloidine, sulphur salts, sulphuretted oils, creosote, xanthates, bi-sulpho-carbonate of the oxide of mythele; acetic, hydrochloric chloracetic, hydrocyanic, hydrosulphocyanic, hydrosulphuric silenious, sulphurous sulphovinic, tartaric, and xanthic acids; added to solutions of salts of silver to produce bright silvering.—3. Manufacturing articles by the electric deposition of metals on the exterior and interior surfaces of the same mould (using for that purpose a mould composed of some material such as gutta percha, which is fusible at a lower temperature than the metals, so that it may be melted and run out from between them).—4. The use of gutta percha, to make the moulds for manufacturing articles by electrical deposition; also the employment of solutions of gutta percha to stop out portions of conducting surfaces, as may be required.—5. The use of hydrogen, evolved from voltaic batteries, as a motive power, the same being mixed and detonated by oxygen and atmospheric air.—6. The use of solutions of gutta percha, to form the etching ground, when such etching is effected by electricity or acids.

R. WILSON, engineer, Low Moor Iron-works, Bradford, York: For certain improvements in steam-engines and boilers, and methods of preventing accidents in working the same.

Claims.—1. A method of constructing and arranging the boilers of steam-engines, in order that when the steam exceeds a certain amount of pressure, the water shall be projected on the fuel in the fire-box or furnace, and wholly or partially extinguish it, and thereby diminish the chance of explosion.—2. A method of constructing steam-boilers so that when the water descends beneath a determinate level, the steam shall be driven into the fuel, which will consequently be considerably damped or extinguished, and thereby prevent the under plates from burning.—3. The use of adjustable wedges, placed between and behind the packing rings of steam-engine pistons.—4. A mode of constructing the segments of packing rings of pistons, buckets, &c., with bevelled or inclined surfaces, whereby the exterior is always kept in contact with the interior surface of the cylinder.—5. A steam-engine governor, to which two motions are imparted—the one being destined for the regulator or throttle valve, and the other for the expansion valve.—6. The use of a piston to give one motion to the valve, the other being given by the movement of the engine, or by a beam.—7. An arrangement and construction of valve-gearing for giving a slow and quick motion, at certain parts of its stroke, to the expansion valve.—8. An arrangement, and construction of valve-gearing which, when the eccentric rod is thrown out of action, closes the valve and stops the engine.

LIST OF PATENTS GRANTED DURING THE PAST WEEK.

J. Davies and G. Davies, of the Albion Iron Foundry, Tipton, Staffordshire, engineers and ironfounders, for improvements in engines worked by steam, air, water, and other fluids, and whether locomotive, marine, or stationary, and also in boilers, the principle of which improvements is likewise applicable to blowing air and pumping water.

J. B. Ecarnot, of France, for improvements in the manufacture of sulphuric, sulphurous, acetic, and oxalic acids, and nitrates.

D. Christie, of No. 3, Saint John's-place, Salford, Lancaster, merchant, for improvements in machinery for preparing, assorting, straightening, teasing, tearing, doubling, twisting, braiding, and weaving cotton, wool, and other fibrous substances. (Being a communication.)

T. Grimley, of Oxford, sculptor, improvements in the manufacture of bricks and tiles.

J. H. Christie, Esq., of No. 13, Craven-street, Strand, Middlesex, for an improved construction of wrought iron wheels, and machinery for effecting the same. (Being a communication.)

The Baron Louis Lo Prestl, of Paris, France, for improvements in hydraulic presses, which are in whole or in part applicable to pumps and other like machines.

W. Holt, of Preston-place, Bradford, York, organ-builder, for certain improvements in the construction of the pallets or valves of organ sound boards or wind chests, the same being applicable to seraphines, colophons, harmoniums, harmoniums, and all other musical instruments in which the tone is produced by the admission of wind supplied by bellows or other machinery to pipes, reeds, or springs, and played upon by a key-board or key-boards, and also to various other purposes connected with all the above-named musical instruments.

W. Birkmyre, of Fulbeck-cottage, Hampstead, chemist, for improvements in the manufacture and refining of sugar.

J. H. Jenkinson, of Salford, Lancaster, machine maker, and T. Priestly, of Shuttleworth, in the same county, manager, for certain improvements in machinery or apparatus to be used for preparing, spinning, and doubling cotton, wool, flax, and similar fibrous materials.

DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

J. Smith, Uxbridge, the Royal Albert cultivator.
H. and J. Gardner, Strand, improved magic stove.
W. Woboward, Minories, concave whelp for ships' windlasses and capstans.
T. K. Potter, Huddersfield, the Victoria spirit lamp. [of windows.
E. W. Elmslie, Gloucester-road, Hyde-park, ventilating sash-bar adapted to all kinds
Battersby, Telford, and Co., Waterloo Foundry, Liverpool, self-revolving sheave.
J. Grant, Hyde Park-street, the cottager's stove.
M. Harvey, Cornhill, Dorchester, the Neapolitan stove.
J. Sheringham, Kensington, ventilator.
T. Moxon, Leicester, cheese bandage.
J. Kiethley, Bradford, Yorkshire, T-shaped boiler for heating buildings, &c.

SMOKE CONSUMING APPARATUS.—Yesterday the *Ariel* steam-vessel, fitted with a new smoke consuming apparatus, went down the river from Woolwich on an official trial. It did not transpire who was the inventor, but the affair was a complete failure; the engines at starting making 19 revolutions per minute, which were gradually reduced to 11½, the pressure of steam decreasing from 5 lbs. to 1 lb. per inch, and on her return at Half-way Reach she came to a dead stop. The steam was without much difficuly got up on removing the apparatus, and the *Ariel* returned to Woolwich Dockyard.

GLASS REFLECTORS.—An importation has recently taken place from France of a parcel of reflectors, being a sample of future importations of a similar description, which, being considered an important improvement on those at present in use, is of some interest. The reflector consists of glass covered with a metallic alloy, in which silver is an ingredient, and to afford security to the coating, it is covered with tenacious lacquer. Although concave reflectors are by no means a novelty, the reflective power of these is said to be so superior and powerful, that the parties considered themselves justified in taking out a patent in France for the invention. The principle is applicable to lighthouses

Current Prices of Stocks, Shares, & Metals.

STOCK EXCHANGE, Saturday morning Eleven o'clock.

Bank Stock, 7 per Cent., 203	Belgian, 4½ per Cent., 87½ ⅝
3 per Cent. Reduced Ann., 96⅞ ⅞	Dutch, 2½ per Cent., 56⅛ 56
3 per Cent. Consols Ann., 97⅛ ⅜ ⅝	Brazilian, 5 per Cent., 86½
3½ per Cent. Ann., 99½ 7½ 8½ 7½	Chilian, 3 per Cent., 57½
Long Annuities, 6⅛	Mexican 5 per Cent., ex Coup., 28½ 9½
India Stock, 10½ per Cent., —	Russian, 5 per Cent., 109½ 110½
3 per Cent. Consols for Acc. 97⅛ ⅜ ⅝	Spanish, 5 per Cent, 19 ⅛ 18½
Excheq. Bills, 1000*l.*, 1½d. 51 54 pm.	Ditto 3 per Cent., 38⅛

MINES.—The share market continues firm, and an active inquiry is still made for most of our leading mines. Several negociations, which were pending last week, have since come off. The present prosperous position of the mines generally, and the apparent firmness of the metal market, with the advance in tin and lead, affords every encouragement for safe and remunerative investment.

Devon Great Consols continues in request, and business doing in them. Condurrow, South Frances, South Tolgus, Trehane, Mary Ann, Carn Brea, and East Wheal Rose are among the several mines in request.

Tincroft is represented to have improved since our last, both in the shaft and 90 end, which is now worth 40*l.* per fathom. Several transactions have been done. Tamar Consols is increasing her returns; the profits from the mines and the smelting department averages nearly 1000*l.* per month. A dividend of 1*l.* per share may be anticipated next month.

Heignston Down is reported to have improved, especially in the 35 fm. level, where they have a lode worth full 30*l.* per fm. Shares have been dormant for some months, and buyers are now to be found at an advanced price. The profitable and improving position of Bedford United, and the progressive improvement in South Tamar have caused several large transactions during the week.

Fortescue shares have also been in demand at a considerable advance, in anticipation of cutting the lode at a very important point.

By Wheal Basset report (which appears in another column), we find, the mine is in a highly productive position. A new and more powerful engine is to supersede the present one.

At Wheal Seton account a dividend of 5*l.* per share was declared. The operations in September and October gave a profit of 623*l.* 9s. 6d., which, added to balance from last account, allowed the above dividend, leaving to credit 222*l.* 8s. The mine has considerably improved of late, with every probability of further improvements being made. During the last two months about 1220 tons of ore have been sold, and the profit anticipated for the next account is estimated at about 1800*l.*

At Wheal Tremayne account meeting a dividend of 10s. per share was declared, leaving a balance in hand of 417*l.* 13s. 11d. The mine is looking remarkably well.

At the Mineral Court meeting the accounts showed balance against the mine of 428*l.* 12s. 2d. during the operations of five months, ending in October. A call of 3*l.* per share was made. Lady Greville, with her usual liberality, has signified her consent to reduce the dues to 1-18th. The reports of Captains Webb and Dale represent the mine in a very promising position.

At the Tavy Consols meeting for September and October the accounts showed a balance against the mine of 230*l.* 16s. 4d. The ore bills due, and not yet at maturity, were more than sufficient to discharge the debt, but to meet the expenditure of the current two months, it would be necessary to make a call of 5s. per share at the next meeting. A vote of thanks was passed to G. Strode, Esq., the freeholder, for his generosity in remitting the balance of dues. The report presented by the agent encourages the shareholders to entertain a hope that the mine would soon be in a position of meeting the costs.

At the Wheal Mary meeting the accounts showed a balance against the mine of 912*l.* 16s. 1d., and a call of 10s. per share was made.

At Wheal Concord meeting a resolution was unanimously adopted, that the purser furnish an account current of the receipts and payments of the mine from commencement of working; and the meeting was adjourned until it be ready for consideration.

At the Herodsfoot adjourned meeting, the mine was divided into 512 shares, instead of 256, as formerly; and a call of 2*l.* 10s. per share was made, to pay off the liabilities.

Shares in the following mines have changed hands during the week:—Devon Great Consols, East Wheal Rose, Tincroft, Bedford United, South Tamar, Devon and Courtenay, Trethevy, Tamar Consols, East Buller, Trelawny, Treviskey and Barrier, South Basset, Tremayne, Mary Ann, Trehane, Stray Park, Bwlch Consols, Heignston Downs, East Tamar, Wheal Russell, Wheal Fortescue, West Wheal Jewel, and Treleigh.

In foreign mines the transactions have been chiefly confined to United Mexican, Copiapo, and St. John del Rey shares; but some few bargains have been effected in Imperial and National Brazilian, Alten, Linares, Australian and North British Australasian shares.

From the Barossa Range Mines, letters have been received, dated 11th June and 9th July, reporting operations as progressing very satisfactorily; 40 tons of ore had been raised at the Bremer, and 15 more would be ready for shipment in two months. The per centage of copper was 25 for 25 tons, and 16 for 15 tons; the latter would be smelted there. The wet season made the roads all but impassable, and rather delayed work at the mines. At the Lyndoch Valley Mine, the ground was hard, and recourse was had to blasting. The quantity of ore raised there was above 30 per cent.

MINING IN FRANCE.—Within the last few months the mining industry of France is said to have been improving. According to the latest reports from St. Etienne, St. Dizier, &c., the iron districts are assuming a lively appearance, and the larger portion of the furnaces are in blast, several extensive orders having been received for railway purposes. In the coal basins of the Loire, Alaix, and other districts, the greatest activity prevails, and the colliers are chiefly in full employ. Money is more plentiful, and confidence is assuming a healthy appearance throughout the country.

BELGIUM.—In this country also the ironmasters and zinc companies are in full employment; business is rapidly on the increase, and an improvement is taking place in railways. The question of the stopping the Sambre and Meuse Railway has been settled by the Minister in a manner satisfactory to all parties, the Government having conceded to the company their just demands, so necessary to enable them to carry out the speculation, so important to the mining interest in its neighbourhood.

ALTERATION OF THE BELGIAN AND FRENCH TARIFFS.—A treaty has been entered into between the Governments of France and Belgium, which will much facilitate the commerce of both countries, and tend to their mutual advantage; it is for the modification of the duties on imports, by which the coal and metal interests of Belgium will be much benefited, and her mechanical industry advanced. The duty on coal imported into France is to be reduced from 10*f.* to 5*f.*, and from 8*f.* to 3*f.* per ton, according to quality; the duty on zinc will be reduced 93 per cent. on existing duties; 83 per cent. on copper. On oleaginous grains, wheat, and rye, there is also to be considerable reductions.

THE IRON TRADE IN AMERICA.—A convention of the furnace-owners of Pennsylvania, Ohio, Virginia, and Kentucky, was held, at Pittsburgh, on the 21st Nov., at which the following resolution was passed:—"That it is the sense of this convention, at the present state of the foreign market, it will require a duty of $10 per ton on pig-iron, and $20 per ton on common bar, and a corresponding increase on all other iron and manufactures of iron, in proportion to cost of make, to protect the American market."

COMPANY OF COPPER MINERS IN ENGLAND.—In our last number we alluded to the almost unsuccessful termination of the labours of the committee of adjudication. We regret that, within the last week, affairs have not assumed a more favourable complexion, the parties, principally debenture holders, still holding out. The conversion of their claims into new stock, though not of present benefit, would have been productive of great prospective advantages, while their pressing their claims along with the trade creditors, will only have the effect of reducing the assets set apart for the latter, and diminishing their own claims to a coeval amount. A meeting of directors was held on the 12th inst., when it was decided that a general court should be held on the 9th of January next, for the purpose of electing an assistant in the room of Mr. Laurie, deceased. On that day, no doubt, the present position of the company's affairs will be fully discussed.

CONTRACTS FOR PIG-IRON, COPPER, &c.—The Commissioners of the Admiralty will be ready, on the 27th inst., to take contracts for the supply of soft pig-iron—the contractors will be bound in 200*l.*; also for 350 tons of tough cake copper—the contractors to be bound in 5000*l.* On the 15th January, they will receive tenders for supplying the dockyards with iron cables and mooring chains; parties to be bound in 200*l.* On the 22d January, they will be ready to treat for the conveyance by steam-vessels of the mails to Sydney, Australia, &c.; the tenders to state where the vessels can be surveyed, and when completely ready for sea.

PRICES OF MINING SHARES.

BRITISH MINES.

Shares.	Company.	Paid.	Price.
1000	Abergwessin	9	9
1024	Alfred Consols	8½	12
1024	AshburtonUnited Mines	8½	12
1024	Bailleswidden	9	18
128	Balnoon Consols	42½	50
1000	Barristown	5½	1½ 2
3650	Bawden	½	¼ ⅜
6000	Bealbury	1	1
4000	Bedford	2½	4½ 4¾
1280	Birch Tor & Vitifer	10½	6¾ 7
2500	Black Craig	6	10
8000	Blenavon	50	10
5000	Blisland Consols	1	5⅛
5000	Bodmin Moor Consols	1	3
100	Botallack	182	30
120	Brewer	5	2½
256	Brimpts Tin	2½	2½
10000	British Iron, New, regis.	12	5
—	Ditto ditto, scrip	10	10
2400	Bryn-Arian	2	6 6½
107	Budnick Consols	52½	10 12
1000	Callington	22	7 8
1000	Camborne Consols	7	7½ 10
20000	Cameron's Steam Coal	7	1
256	Caradon Mines	22½	10
256	Caradon United	24	5 8
256	Caradon Wh. Hooper	21	4½
1000	Carn Brea	15	105
3000	Carthew Consols	1½	7
114	Charlestown	220	—
500	Combiawn	5½	4½
128	Comfort	45	86 100
256	Condurrow	20	85 90
2560	Cook's Kitchen	14	2½ 3
1000	Coombe Valley Quarry	5	5
1000	Copper Bottom	1½	6½
900	Court Grange	7	10
212	Craddock Moor	23½	5
128	Creeg Braws	120	30
500	Cubert Mine	12½	—
1000	Cwm Erfin	3½	1½ 2
7100	Derwent	8½	5
845	Devon&CourtenayCon.	8	2½ 2¾
1024	Devon Great Consols	1	187 195
1000	Dinorode	2	5
182	Dolcoath	30	20-25
2560	Drake Walls	5½	3
10000	Durham County Coal	45	5
3000	Dytngwn	10	10 12
512	East Alvenney	5½	6
2500	East Birch Tor	3	3
1024	East Buller	1	4 4¼
112	East Caradon	47	47
2048	East Crowndale	6¼	4
128	East Pool	15	85
9000	East Tamar Consols	¾	1
256	East Tolgus	1½	4¼
94	East Wheal Crofty	125	65
128	East Wheal Rose	50	605 630
—	East of Scotland Iron Co.	5	1½
128	East Wheal Seton	14	10
1280	Esquir Llee	2	2 4
248	Exmoor Wh. Eliza	6	6
494	Fowey Consols	40	45
1024	Frehd Llwydd Mines	1½	3½
4000	Gen. Mining Co. for Irel.	1½	1¼
256	Gonamena	44½	16
128	Gounvren	4	2
256	Grambler & St. Aubyn	80	10
96	Great Consols	1000	265 270
512	Gt. Wh. Bough Tor Con.	24½	18 20
6000	Grows Slate Company	9	5 7
256	Hawkmoor	12½	70
6000	Heignston Down Con.	1½	1 1½
1500	Hemock Silver-Lead	5	5 6
4500	Hemock Iron & Tin	21	21s
512	Herodsfoot	16	10 10½
10000	Hibernian	12½	1⅝
1000	Holmbush	22	6
1024	Kingsett and Bedford	1½	3⅞ 4½
787	Kirkcudbrightshire	8½	1½ 2
2048	Lamberroue Wh. Maria	8	2½
252	Lanarth Consols	—	3½
128	Lelant Consols	95	40 50
160	Levant	—	180
1000	Lewis	17	9½ 10
1000	Llwyngmalees	8½	13 15
3500	Llynvi Iron	50	50
253	Lostwithiel Consols	23	10
6000	Marke Valley	10	⅝ 1
5000	Mendip Hills	3½	3 3½
128	Methu	34	—
20000	Mining Co. of Ireland	7	4½ 5
256	New East Crowndale	3½	4½ 5
100	North Pool	45	520
140	North Roskeur	5½	150
262	North Wh. Leisure	1½	2
16000	Northern Coal Co.	23	2
128	Par Consols	55½	650
1248	Pengelly Tin	1	1
8000	Pennant & Craigwen	2½	2
1024	Penzance Consols	22s 3d	4
512	Plymouth Wh. Yeolund	6½	6
200	Polsalth Consols	5½	4½
2500	Rhoswiddol&Bacheiddon	10	10
10000	Rhymney Iron	50	13
10000	Ditto New	7	6½
1000	Rosewall Hill	1	5
256	Rosewarva Mines	—	12

BRITISH MINES—*continued.*

Shares.	Company.	Paid.	Price.
2048	Runnaford Coombe Tin	¼	5
9000	South Tamar	5	2½ 2¾
128	South Caradon	5	200
1100	South Dolcoath	5	¼ 1
256	Sth. Friendsh. Wh. Ann	30	28 30
256	South Molton	7	12 13
256	South Tolgus	16	100 110
256	South Trelawny	28½	5
2000	South Wales Mining Co.	1	1 1¼
128	South Wheal Basset	20½	450
124	South Wh. Frances	160	300
256	South Wh. Josiah	2	3¼ 4
1000	South Wh. Maria	2½	1¼
10000	Southern & Western, Irish	2½	4
280	Spearne Moor	30	40
94	St. Ives Consols	—	80
128	St. Michael Penkivel	5	10½
999	St. Minver Consols	1	6
1000	Stray Park	43	21 22
9600	Tamar Consols	3	7 8
10240	Tavistock Consols	½	⅛ ¼
1024	Tavy Consols	6½	1½
6000	Tincroft	7	12
58	Tokenbury	170	10
120	Tolcarne	8	25
256	Tregorden	3½	5
256	Trehane	1½	31 32
5000	Treleigh Consols	6	3½ ¾
2000	Trenance	3	—
96	Tresavean	10	95
120	Trethellan	5	15 17
120	Treviskey and Barrier	130	130 135
1000	Tyllwyd	2	2½
200	United Mines	50	160
256	Wellington Mines	25	35
128	West Buller	10	380
256	West Caradon	20	95 100
512	West Fowey Consols	40	12
—	West Par Consols	2½	—
2500	West Polgooth	5	5
256	West Providence	9	28 30
200	West Seton	45	185 190
120	West Trethellan	5	5
512	West Wheal Frances	1⅜	3 5
256	West Wh. Friendship	9	8
3725	West Wheal Jewel	12	2½ 2¾ 2⅝
256	West Wheal Tolgus	80	5
256	West Wheal Treasury	27½	10 15
1024	Whiddon Mines	4½	2
5200	Wicklow Copper	5	8½
107	Wheal Adams	130	110 120
1000	Wheal Agar	—	6
256	Wheal Albert	10	1
240	Wheal Anderton	28	15 20
128	Wheal Ann	—	50½
512	Wheal Anna Maria	7	4
120	Wheal Bal	5½	10
256	Wheal Benny	14½	2
1024	Wheal Bray	11½	10
232½	Wheal Calstock	9	20 25
182	Wheal Elizabeth	9	11 16
256	Wheal Fortescue	15	12 14
100	Wheal Friendly	70	66½
388	Wheal Franco	27	11 12
100	Wheal Henry	—	24
1024	Wheal Lawrence	2½	2½
112	Wheal Margaret	79	225 230
512	Wheal Mary Ann	5	32½ 35
5000	Wheal May	¼	1½ 1⅝
360	Wheal Oak	25½	5
3000	Wheal Penhale	1½	6
210	Wheal Prospect	4	7
120	Wheal Reetin	41	150
128	Wheal Rose	60	3
198	Wheal Seton	107	230
180	Wheal Sisters	35¾	5
512	Wheal Sophia	5½	7
128	Wheal Speurne	10	68 70
128	Wheal St. Ann	30	35
550	Wheal Trescoll	10½	19 20
260	Wheal Trelawny	75	81 82½
256	Wh. Tremaine (St. Ervan)	9½	2½
1024	Wheal Tremayne	9½	5½
267	Wheal Tryphena	140	30
1000	Wheal Vincent	2½	7
128	Wheal Vlow (Perranz.)	1½	1½
184	Wheal Vyvyan	—	60

FOREIGN MINES.

5000	Alten Mining Company	14½	2½ 2⅝
15000	Asturian Mining Co.	15	2½
20000	Australian	4	6
6000	Barossa Range	1½	1⅝ ¾
3000	Bolanos	150	—
2000	Ditto Scrip	15	—
10000	Brazilian Imperial	23	3 4
12000	Cobre Copper Co.	40	29
10000	Copiapo Mining Co.	14	4 4½
20000	General Mining Ass'n.	20	10½
4000	Guadalcanal	5	1½ 2
5000	Kinzigthal Mining Ass.	2	1½
5051	Mexican Company	59½	—
2000	Mexican & South Amer.	8	1 1½
5000	National Brazilian	30	3½
104000	N. Brit. Australasian	1	⅝
7000	Royal Santiago	10	5⅝
11000	St. John del Rey	15	10½ ⅝ ¾
43174	United Mexican	Av. 28½	5⅝
10,000	Worthing (S. A.)	2	2½

LATEST CURRENT PRICES OF METALS.

LONDON, DECEMBER 14, 1849.

	per ton.
ENGLISH IRON. *a*	
Bar, bolt, & square, London	£5 12 6–5 17 6
Nail rods	6 12 6–6 15
Hoops	7 10–7 15
Sheets (singles)	8 10–8 15
Bars, at Cardiff & Newport	5 0–5 5
Refined metal, Wales*	3 7 6–3 12 6
Do. anthracite*	3 15 0
Pigs in Wales	3 5–4 0
Do. do. forge	2 15–3 5
Do., No. 1, Clyde ... *net cash*	2 4 6f–2 7
Blewitt's Patent Refined Iron for bars, rails, &c., free on board at Newport*	3 15 0
Do., do., for tin-plates, boiler plates, &c., ditto	4 10 0
Stirling's Patent } in Glasgow	2 15–2 18
Toughened Pigs } in Wales	3 10–3 15
Staffordshire bars, at the works	6 10
Pigs, in Staffordshire	2 10–3 0
Rails	5 0–5 5
Chairs	4 0 0
FOREIGN IRON. *b*	
Swedish	11 0–11 10
CCND	16 5–16 10
PSI	15 0
Gourieff	14 10
Archangel	—
FOREIGN STEEL. *c*	
Swedish keg	14 15–15 0
Ditto faggot	15 0–15 5
ENGLISH COPPER. *d*	
Sheets, sheathing, & bolts	*p. lb.* 0 0 9½
Tough cake	*per ton* 84 0 0
Tile	£83 0 0
Old copper *e*	*per lb.* 8*d* 8½*d*
Yellow Metal Sheathing	8*d*
FOREIGN COPPER. *f*	
Russian	88 0–90 0
ENGLISH LEAD. *g*	
Pig	*per ton* 16 5–16 10
Sheet	17 5 0
Red lead	17 10 0
White ditto	22 0 0
Patent shot	18 15 0
FOREIGN LEAD. *h*	
Spanish, in bond	15 0–15 10
American ditto	—
ENGLISH TIN. *i*	
Block	*per cwt.* 3 13 0
Bar	3 14 0
Refined	3 19 0
FOREIGN TIN *k*	
Banca, in bond	3 12–3 13
Straits	3 10–3 12
Peruvian (6 mo 2½ p. ct. dis.)	3 6 6
TIN-PLATES. *l*	
IC Coke	*per box* 1 7 0
IC Charcoal	1 11–1 12
IX ditto	1 16 6
SPELTER. *m*	
Plates, warehoused	*per ton* 15 0–15 5
Ditto, to arrive	—
ZINC. *n*	
English sheet	*per ton* 20 0 0
QUICKSILVER *o*	*per lb.* 3*s.* 4*d.*

Terms.—*a*, 6 months, or 2½ per cent. dis.; *b*, ditto; *c*, ditto; *d*, 6 months, or 3 per ct. dis.; *e*, 6 months, or 2½ per cent. dis.; *f*, ditto; *g*, ditto; *h*, ditto; *i*, ditto; *k*, net cash; *l*, 6 months, or 3 p. ct. dis.; *m*, net cash; *n*, 3 months, or 1½ p. c. dis.; *o*, ditto, 1½ dis.

* Cold-blast, free on board in Wales.—† Mixed Nos.; No. 1, Gartsherrie, 50s.

REMARKS.—A moderate business in Welsh bar-iron is doing at 5*l.* 5s. per ton, free on board at the pors. In Scotch pig-iron advices from Glasgow report the decline noticed in our last has been recovered, and that during the week there has been more inquiry. We quote mixed Nos., 46s. 6d.; all No. 1, 47s.; and No. 1 Gartsherrie, 48s.—net cash. In other metals no alteration.

MANCHESTER, DEC. 11.—We have no change to report to-day; prices for Scotch pig-iron remain firm, and for manufactured iron there is a continued steady demand; in the former we have scarcely any transactions of moment to report, for which the advanced state of the year will probably account: the price in the Clyde is 46s. 6d. cash here; about 52s. 6d. at Runcorn and Fleetwood.

GLASGOW, DEC. 13.—The operators in Scotch pig-iron, owing to recent speculations, have been exceedingly cautious this week, and, therefore, there has not been much business doing. From the exceeding firmness of holders, however, the tendency has been to an advance in price. In the early part of the day there were sales at 46s. to 46s. 6d.—cash, for mixed Nos.; but at the close of the day the price improved to 47s.

NEW YORK.—At the date of last advices (Nov. 28) the iron market was very inactive, and the sales were limited to 300 tons Scotch pig, at $20½ to $21; 250 tons ditto Coltness, at $19½ cash and six months; and 350 tons English bars, at a decline on previous sales. For sheathing copper there was a moderate demand at 21 cents., and yellow metal at 17½ cents. The stocks of foreign lead were increasing, with a dull market.

SILVER-LEAD ORE

Sold on the 8th of December.

Mine.	Tons.	Price per Ton.	Purchaser.
Wheal Golden	38	£12 13 0	J. T. Treffry.

Amount of money, £457 18s.—21 cwts. to the ton.

LEAD ORES.

TICKETINGS FOR ABOUT 100 TONS LAXEY LEAD ORE.

Douglas, Isle of Man, December 8.

Bidders.	Price per Ton.
Walker, Parker, & Co. (purchasers)	£20 12 0
John P. Eyton	20 1 6
Thomas Somers	19 19 6
Sims, Willyams, & Co.	19 18 6
Newton, Keates, and Co.	19 15 0
Joseph T. Treffry	19 12 6
E. W. Pontifex & Wood	19 10 0
Combmartin Smelting Company	18 4 0

Ticketings at the White Horse Hotel, Holywell, December 13.

Mines.		Tons.	Price.	Purchasers.
Macsyrerwddu (Talargoch)		32	£10 7 6	Walker, Parker, & Co.
ditto	ditto	32	10 7 6	Newton, Keates, & Co.
ditto	ditto	75	10 11 6	Walker, Parker, & Co.
Cootia Llys	ditto	48	11 5 6	J. P. Eyton.
Hendre		60	10 6 0	Newton, Keates, & Co.
ditto		16	10 5 0	ditto
ditto		14	10 2 6	ditto
Deep Level (Halkin Mines)		108	10 8 0	Walker, Parker, & Co.
Fronfowno g		110	10 7 0	Newton, Keates, & Co.
ditto		65	10 7 0	Walker, Parker, & Co.
ditto		26	13 2 6	ditto
ditto		25	13 3 0	ditto
Aberdune		8	10 3 6	Newton, Keates, & Co.
Talacre		100	12 0 0	Walker, Parker, & Co.
Macsysafn		50	10 6 0	J. P. Eyton.
Panty Celyn		50	11 18 0	Newton, Keates, & Co.
South Australia		45	13 4 6	Walker, Parker, & Co.
	Total tons		860.	
	Sold at the Mine.			
East Wheal Rose		60	£14 6 0	Sims & Co.
ditto		54	13 13 6	Walker, Parker, & Co.
ditto		51	13 6 0	ditto
	Sold at Dee Bank.			
Shallee		29½	£15 3 6	Walker, Parker, & Co.
ditto		11	10 0 6	J. P. Eyton.
ditto		2½	10 15 0	Walker, Parker, & Co.
	Sold in London.			
Tamar		81	£20 15 6	Tamar Smelting Co.

BLACK TIN.

Mines.	Tons.	Price.	Purchasers.
Polberrow	31	£40 5 0	Daubuz; Calenick; Williams; and Bissoe Co.
South Friendship Wh. Ann	1½	41 0 0	Daubuz and Enthoven.

COPPER ORES.

Sampled Nov. 28, and Sold at Andrew's Hotel, Redruth, Dec. 13.

Mines.	Tons.	Price.	Arines.	Tons.	Price.
Carn Brea	102	£ 3 19 6	Levant	72	3 3 0
ditto	100	5 19 6	ditto	64	3 7 0
ditto	98	5 3 6	ditto	47	3 12 0
ditto	92	5 8 6	ditto	27	7 14 0
ditto	88	13 6 0	West Wh. Buller	96	10 1 6
ditto	83	5 14 6	ditto	38	4 5 6
ditto	70	6 13 6	ditto	34	4 9 6
ditto	63	7 18 0	Wh. Tremayne	58	2 4 0
ditto	62	6 1 6	ditto	57	4 7 6
ditto	59	10 4 6	ditto	41	2 4 6
ditto	58	10 6 6	Wellington Mines	51	5 19 0
ditto	51	9 5 0	ditto	42	7 10 6
ditto	48	2 10 0	ditto	33	3 19 0
ditto	47	8 4 6	West Wh. Seton	63	5 1 6
Tywarnhayle	90	4 0 0	ditto	56	5 0 6
ditto	77	3 4 0	Wh. Agar	66	3 19 6
ditto	64	2 6 6	ditto	51	6 8 6
ditto	47	2 12 0	West Wh. Treasury	60	5 7 6
ditto	36	3 8 6	ditto	50	6 6 0
ditto	25	4 15 0	Hawk's Point	23	6 0 0
ditto	24	7 14 0	ditto	21	3 12 6
Nancekuke	72	3 3 0	Wh. Busy	37	2 16 0
ditto	15	3 11 6	South Wh. Fortune	27	4 14 0
Par Consols	91	6 18 0	St. Aubyn & Grylls	22	5 12 6
ditto	82	6 6 0	Wh. Prosper	18	1 17 6
ditto	80	5 14 0	Bastain's Ore	10	2 4 6

TOTAL PRODUCE.

Carn Brea	1020	£7168 12 0	Wh. Agar	117	590 0 6
Tywarnhayle	450	1584 13 6	West Wh. Treasury	110	637 10 0
Nancekuke			Hawk's Point	44	214 2 6
Par Consols	253	1600 10 0	Wh. Busy	37	103 12 0
Levant	210	818 6 0	South Wh. Fortune	27	126 18 0
West Wh. Buller	168	1281 16 0	St. Aubyn & Grylls	22	123 15 0
Wh. Tremayne	156	468 4 0	Wh. Prosper	18	33 15 0
Wellington Mines	126	749 17 0	Bastain's Ore	10	22 5 0
West Wh. Seton	119	601 2 6			

Average Standard ..... £104 18 0 | Average Produce 8

Average Price per ton £5 12 0

Quantity of Ore ..... 2887 tons | Quantity of Fine Copper, 229 tons 8 cwts.

Amount of Money £16,124 19 0

LAST SALE.—Average Standard ..... £108 15 0.—Average Produce ..... 7½.

Standard of corresponding sale last month, 102*l.* 1s.—Produce, 8½.

COMPANIES BY WHOM THE ORES WERE PURCHASED.

	Tons.	Amount.
Vivian and Sons	859	4362 15 8
Freeman and Co.	521	3464 17 8
Grenfell and Sons	27	126 18 0
Crown Copper Company	41	339 5 6
Sims, Willyams, and Co.	432	1613 11 0
Williams, Foster, and Co.	775	4978 15 2
Schneider and Co.	232	1238 16 0
Total tons	2887	£16,124 19 0

Copper ores for sale on Thursday next, at Andrew's Hotel, Redruth.—Mines and Parcels.—Devon Great Consols, Wheal Josiah, Wheal Maria, Wheal Fanny, and Wheal Anna Maria 1260—West Caradon 281—Marke Valley 245—Fowey Consols 243—Wheal Friendship 189—Bedford United Mines 120—Holmbush 100—Wheal Pink 56—Creeg Braws 30—Phœnix Mines 23,—Total, 2547 tons.

Copper ores for sale on Thursday week, at Andrew's Hotel, Redruth.—Mines and Parcels,—United Mines 1034—Wheal Comfort 390—Par Consols 259—South Caradon 215—Tresavean 139—Treleigh Consols 95—West Fowey Consols 88—West Wheal Jewel 76—West Trethellan 50—Wheal Penhale 18—Carthew Consols 15.—Total, 2379 tons.

COPPER ORES

Sampled Nov. 21, and Sold at Swansea, Dec. 13, 1849.

Mines.	Tons.	Prod.	Price.	Mines.	Tons.	Prod.	Price.
Cobre	91	15½	£11 9 0	Santiago	5	33½	£27 2 6
ditto	87	16½	12 12 6	Berehaven	121	12½	9 16 6
ditto	82	15½	11 11 0	ditto	95	12½	10 5 0
ditto	61	15½	12 11 0	ditto	93	12½	9 16 6
ditto	50	22½	17 15 6	Burra Burra	51	29	23 7 6
ditto	47	23½	18 5 0	ditto	49	28½	22 19 0
ditto	15	17½	13 10 0	ditto	48	29½	24 3 6
ditto	44	14½	11 5 0	Knockmahon	96	9½	7 5 6
Santiago	100	11½	9 1 0	Burra Burra	40	36½	29 15 0
ditto	86	11½	9 1 0	ditto	30	35½	28 16 0
ditto	78	11	8 18 0	Gurtnadyne	21	10½	8 11 0
ditto	72	11½	8 18 6	Lackamore	18	9½	7 11 0
ditto	65	11½	8 17 0				

TOTAL PRODUCE.

Cobre	477	£6296 19 6	Knockmahon	96	£ 698 8 0
Santiago	406	3730 19 6	Burra Burra	70	2054 0 0
Berehaven	369	3076 6 0	Gurtnadyne	21	179 11 0
Burra Burra	148	3477 1 6	Lackamore	18	135 18 0

COMPANIES BY WHOM THE ORES WERE PURCHASED.

English Copper Company	144	£1971 4 3
Freeman and Co.	142	1219 7 6
Grenfell and Sons	117	1963 7 6
Crown Copper Company	136	1224 6 6
Sims, Willyams, and Co.	91	1587 9 0
Vivian and Sons	198	1894 4 0
Williams, Foster, and Co.	342	4374 9 6
Schneider and Co.	192	1871 18 9
Benjamin Smith	100	2316 13 6
Mason and Elkington

NOTICES TO CORRESPONDENTS.

*** We must impress upon our correspondents, the necessity of invariably furnishing us with their names and addresses—not that their communications should, consequently, be noticed, but as an earnest to us of their good faith.

VALLEY OF LOETCHEN MINING COMPANY.—We can only give the substance of our correspondent's ("W. T.," St. John's Wood) communication on the Loetchenthal Mining and Smelting Company, Canton du Valais, Switzerland. If wished to be inserted in detail, it must be as an advertisement. In reply to the query of "A Constant Reader," in the Journal of the 1st inst., it is stated that, some time prior to March, 1847, a concession of the mines now owned by the company was granted by the local Government of the Canton du Valais to the Messrs. Baglioni (*pere et fils*); and, after being hawked about a considerable length of time in various continental states, was assigned to the Messrs. Blanch, Truscott, and others, who set about the formation of a company, with offices in Southampton-street, Strand. The assignments became, however, forfeited, in consequence of the vexatious clauses of the Joint Stock Companies' Act; and such forfeiture was hastened by the instrumentality of Messrs. Boyer and Hooker, of Sion, Canton du Valais, who were stipulating for new assignments. The necessary legal notice to Messrs. Blanch and Co., to confirm the forfeiture, was surreptitiously kept back from personal service by Mr. Walter Hooker, in London; and thus Mr. Blanch's absence from the court at Sion was construed into a withdrawal of right on one hand, and a contempt of court on the other; and by this treachery, aided by a little low cunning practised on the Baglionis, the concession passed to Messrs. Grave, Hair, Hooker, and Rippon. Mr. Blanch, finding himself thus tricked, has made an attempt to recover his lost footing by application to the local Government, and if its proceedings were based on the prosecution of these frauds, which can be readily proved, it is easy to perceive what would be the result, and the consequent value of the present shares. Mr. Radley, who is said to have a valuable process for reducing these ores, which are intractable by the common methods, in consequence of the presence of arsenic, silex, and antimony, and who holds a stamped appointment as smelter and refiner of silver-lead, has been ousted with as little ceremony and good faith as Mr. Blanch has been fraudently deprived of his rights. Our correspondent concludes that, in a short time, the value of the 100 shares, on which 50*l.* has been paid, will be rather problematical. There is a total absence of materials suited for furnace construction and suitable fuel, with great difficulty of transmission of materials, and these form a serious drawback to the value of the property. The present company consists of 256 shares of 100*l.* each, one-fourth of which are held free by Mr. Boyet, another fourth (subject to a small consideration) by Messrs. Davies, Hooker, and Rippon, about 30 shares are held in Manchester, and 98 in the possession of London shareholders. The offices are in Bishopsgate-street.

"Geologist" (Cornhill).—The principal volcanic tracts of Europe, which all belong apparently to the tertiary and modern periods of geology, are those of the Puyde Dôme, Cantal, and Velai in France; of the Eifel, the Rhine, below Andernach near Heidelburgh, and near Freyburg; the Vogelgebirge, Rhonegebirge, Eisnach, north of the Lake of Constance, Hungary, Transylvania, and the Grecian Archipelago. The following short synopsis of active volcanoes will show their general proximity to the sea. In the islands and sea coasts of Europe: Etna, Vesuvius, Stromboli, several in Iceland, Jan Mayen, and Santorino. In islands of Africa: Teneriffe, Lanzerote, Cape Verd Isles, Azores, Isle of Bourbon, and Madagascar. In islands of Asia: Zibbel Teir, in the Red Sea, an island in the sea of Azoph, Aleutian islands, Kusile Islands, Loo Choo, Formosa, Lucon, Fugo, Mindanao, Celebes, Ternate, Fidore, Sumbawa, Java, Sumatra, Barren Island, Banda, New Guinea, New Britain, New Ireland, Friendly Islands, Society Islands, and Ladrone Islands. On the continent of Asia, near the coasts or inland seas: Demavend, and Kamschatka. America, in the islands: West Indian Islands, Gallapagos. America, near the coast: California, Nicaragua, Guatemula, Columbia, Peru, and Chili. America, more inland: Mexico.

"T. F. G." (Hawley).—An alkalinometer is an instrument for measuring the alkaline form or purity of any of the alkalies of commerce. It is founded on the principle, that the quantity of real alkali present in any sample is proportional to the quantity of acid a given weight of it can neutralise.

"E. M." (Piccadilly).—Franklin's first researches were published under the title of *New Experiments and Observations on Electricity, made at Philadelphia, in America*, and addressed to Mr. Peter Collinson, in the form of letters, bearing date from 1747 to 1754.

D. Brucciani (Red Lion-street).—Massive and granular gypsum is found in this country in the red marl, or new red sandstone, accompanying the salt deposits in Cheshire. It abounds in the tertiary strata of Montmartre, near Paris, and contains organic remains; sometimes it forms entire hills. In the Tyrolese, Swiss, and Italian Alps, it is found upon the primitive rocks, often of the purest white, especially at Montier, near Mont Blanc, and near the summit of Mount Cenis. It is turned by the lathe, and sculptured into a variety of beautiful forms, more especially by the Florentine artists. Columns for interiors are sometimes formed of it.

"J. B." (Manchester).—The great ship canal of Amsterdam and Niewdiep is one of the most magnificent and capacious in the world. It was constructed to afford a safe and easy passage for large vessels between Amsterdam and the German Ocean; for although the roadstead in front of the city has 40 feet of water, yet on the pampas, or bar, where the River Ye enters the Zuyder Zee there are only 10 feet; and, therefore, any considerable ship must only be partially loaded when passing this bar. The Zuyder Zee being every where full of shallows, all ordinary means of improving the access to Amsterdam necessarily failed, and this seemed to have suggested the idea of constructing a great ship canal from this city to Niewdiep, near the Helder, the most northern point of the province of Holland. The direct distance is 41 miles, but along the track of the canal it is about 50½ miles. The width at the water's surface is 124½ feet, and at the bottom 86, with a depth of 20 feet 9 inches. Like most of the Dutch canals, its level is that of the highest tides, and it receives its supply of water from the sea, but which at neap tides has to be raised by a steam-engine. The design of the high level is, no doubt, to exclude mud. This canal is crossed by about 18 drawbridges. It has tide locks only, and these are, of course, at the extremities; but between them there are, besides, two sluices with floodgates. The locks and sluices are double—that is, there are two in the breadth of the canal. There is a towing-path on each side, and the water is broad enough for two frigates to pass. This canal was begun in 1819, and finished in 1825. From the Ye, at Amsterdam, where the canal begins, between artificial embankments, it proceeds north to Purmerend, then west to Alkmaar Lake, again north by Alkmaar to within two miles of the sea near Petten, from which it runs nearly parallel to the coast, till it joins the sea at the fine harbour of Niewdiep. The Helder is the only place on the shores of Holland which has deep water, and this owing to its being opposite the Isle of Texel, which, by contracting the water to about the breadth of a mile, occasions a current sufficient to scour and deepen the channel. Had it not been for the shallow water, a canal of half the length might have connected Amsterdam with the German Ocean.

"J. T." (Charing-cross).—Mr. Fresnel was the first person who observed the influence of heat in altering the tints of sulphate of lime perpendicular to the laminæ. Prof. Mitscherlich has, however, investigated the action of heat upon this mineral, so completely as to include all previous experiments in his results. Having found that heat acts upon calcareous spar differently in different directions, expanding it in the direction of its axis, and slightly contracting it in directions perpendicular to the axis, he sought to determine if any variation in the double refraction was produced by heat. By the method of interferences, and observing the compensation produced by crossing plates of crystals at different temperatures, he observed that a change in the double refraction was produced. In extending these experiments, Prof. Mitscherlich found that the two resultant axes of sulphate of lime inclined 60° to each other at common temperatures, approached each other when heated till they met, and constituted one axis, of double refraction. By increasing the heat, they again separated, in a plane perpendicular to the laminæ. In this experiment, the principal axis of double refraction which bisected the optic axis gradually increased, while the second real axis, perpendicular to the laminæ, diminished and disappeared when the crystal assumed the uniaxal state. A new axis then sprung up in the plane of the laminæ, perpendicular to the principal axis.

John Stone (Edgeware-road).—The electrometer used by the Abbe Nollet, consisted of two silk threads, which indicated by their divergency the presence of small quantities of electricity; and he even attempted to measure their magnitude, by ascertaining the angle of divergency from the shadow of the threads upon a board. This electrometer was improved by Mr. Waltz, who suspended small weights to the silk threads.

"Antiquarian" (Westminster).—There is undoubted proof that the lead mines of this country, at least those in Derbyshire, were wrought in the time of the Romans, this metal having been exported A.D. 14. At the time of the conquest it was used to roof churches.

George Stafford (Dartford).—Mountain meal is abundant in Tuscany, and is found near Castel del Piano, in the territories of Sienna. According to the analysis of M. Fabbroni it consists of 55 parts of silicious earth, 15 of mesqueira, 14 of water, 12 of alumina, 3 of lime, and 1 of iron. It exhales an argillaceous odour, and when sprinkled with water throws out a light whitish smoke. It is infusible in the fire, and though it loses about one-eighth of its weight, its bulk is scarcely diminished. Bricks composed of this substance, either baked or unbaked, float in water, and a twentieth part of argil may be added to their composition without taking away their property of swimming. These bricks resist water, unite perfectly with lime, are subject to no alteration from heat or cold, and the baked differ from the unbaked solely in the sonorous quality which they have acquired from the fire. Their strength is little inferior to that of common bricks; and M. Fabbroni found that a floating brick, measuring 7 inches in length, 4½ in breadth, and 1 inch 6 lines in depth, weighed only 14½ ounces, whereas a common brick of the same size weighed 5 lbs. 6½ ounces. They are such bad conductors of heat, that one end may be made red hot while the other is held in the hand.

J. Walker (Tower Hill).—The first Roman coinage took place in the reign of Servius Tullius, which, according to the common chronology, would be about 550 years before Christ. The *as*, or *pondo*, of this early period contained a Roman pound of copper, the metal then exclusively used in the Roman coinage, and was divided into 12 parts, or *uncia*. The *denarius*, the principal silver coin in use among the Romans for a period of 600 years, was coined five years before the first Punic war, and was rated at the mint value of 10 of the above coin.

"Miner" (Redruth).—The mineral called blacklead, or plumbago, is found at Borrowdale, in Cumberland, where mines of it have been worked since the days of Queen Elizabeth, and furnishes the best material hitherto discovered for making pencils. Formerly the proprietors of these mines enjoyed a complete monopoly of the market; and by occasionally shutting them up, and then diminishing the supply of the minerals, they kept its price at a high level, and realised large profits. But plumbago having been imported in considerable quantities from Mexico and Ceylon, and although inferior in quality, yet being cheaper than the English, it has superseded the latter for most purposes, except the best kind of pencils. It is not often found in veins, but in detached pieces. It is often lost, and the miners are frequently engaged for a long time in seeking at random for a new supply. The quality of the mineral differs materially, the lightest being the best. It is cut into the proper form for pencils by the manufacturers of Keswick and London.

"A Young Architect" (Wells).—The bridge over the River Taff, near Llantrissart, in Glamorganshire, is justly celebrated, on account of its span and the extraordinary circumstances which attended its construction. In 1746, William Edwards, a country mason, undertook to build a bridge at that place. He built one of three arches, which was allowed to be well executed, but being in a mountainous district, the torrents sometimes rise hastily to a height which would seem almost incredible to the inhabitants of a flat country. An instance of this sort happened after this bridge had stood about two years and a half, when the torrent carried along with it trees, brushwood, hay, and whatever of this kind lay in its way. These were entangled in the arches, and causing the water suddenly to create a great head, the bridge was swept away. As Edwards had given security to maintain the bridge for seven years, he immediately set about rebuilding it. To avoid future injuries from similar torrents, he constructed one arch, the segment of a circle, of which the chord line was 140 feet, and the versed sine 35 feet. The arch was finished, but had not received the parapets, when the weight pressed in the haunches, raised up the crown, and destroyed the arch. Edwards then consulted Mr. Smeaton, and the bridge was rebuilt in 1755. The chord line and the versed sine are the same as before, and the width across is 11 feet. In each haunch, or spandrel, there are three cylindrical arches, quite across the bridge; the lowest is 9 ft., the middle 6 ft., and the uppermost 3 ft. diameter. These, to avoid weight, are left hollow, and the spaces between filled up with charcoal. From the steepness of the ascent on each side, and the narrowness across, this bridge is more remarkable as an effort of art than for the public accommodation it affords.

GOLD IN WALES.—The communication of Mr. J. D. Stagg, on the Extraction of Gold at Flint, will appear in our next.

Henry Lowndes (Chiswick).—The total weight of the metal used in the Hammersmith Suspension Bridge was 473 tons 2 cwts. 1 qr. 24 lbs.

"A Driftman."—A cubic foot of distilled water weighs 62·3362 lbs. avoirdupois. A gallon of common water weighs 10 lbs., and measures 277·296 cubic inches. The price paid for digging and bricking the sewers varies according to the ground. *Templeton's Millwright and Engineers' Pocket Companion*, published by Simpkin and Marshall, is a very useful work.

"A Constant Reader" (Lanarkshire) inquires the dimension, length and diameter of cylinder, length of stroke, number of strokes per minute, of a water-pressure engine capable of lifting 1375 lbs. of water per minute a height of 60 fms., as well as the quantity of water necessary to do the work, the pressure of the water being 90 ft.; likewise the power of the engine, and what power would be expended in overcoming the friction. We have submitted this query to several engineers, who inform us the details would be so practical and professional, that it would be much better that our correspondent should endeavour to obtain the opinion of some experienced authority.

The communications of Mr. David Mushet, on the Manufacture of Iron, and on Carbon and Iron, will appear in our next Journal.

"An Adventurer" (Leeds)—Should apply to a sharebroker, who will advise as to the prospects of the adventure.

"J. M. D." (Pelton).—We do not think there are any classes or tutors attached to the Royal Cornwall Polytechnic Institution. Certainly it is not a "college" for the education of young men. It is a literary and scientific society, with a museum and library, where, by application, doubtless much useful information may be obtained.

"A Young Miner" (Wrexham).—The work recommended treats on dialling underground. *Budge's Miners' Guide* is a useful work for a student.

*** We should feel obliged to all pursers, captains, or adventurers, to forward particulars of meetings, &c., of the mines with which they may be connected, on the earliest opportunity, that they may be published in the Journal.

*** It is particularly requested that all communications may be addressed—

TO THE EDITOR,
Mining Journal Office,
26, FLEET-STREET, LONDON.

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THE MINING JOURNAL
Railway and Commercial Gazette.

LONDON, DECEMBER 15, 1849.

The MINING JOURNAL is published at about Eleven o'clock on Saturday morning, at the office, 26, Fleet-street, and can be obtained, before Twelve, of all news agents, at the Royal Exchange, and other parts of London.

The new contracts which it is understood are about to be entered into by the Government for the conveyance of the ocean mails, will, it is expected, secure the more speedy transit and the more regular delivery of the commercial and general correspondence of the United Kingdom, on both shores of the American continent. In every point of view an improvement in these particulars is most desirable and important, for a line of steam communication, stretching forward almost in a straight line from Southampton to the Gulf of Mexico, will bring us into the most direct communication which at this moment is possible, with that new and mixed empire which is rapidly rising into strength and influence in the south-western hemisphere. By the new arrangement, the mails for the West Indies, for Central America, and for the coasts and islands of the Pacific, will be forwarded from Southampton to the Island of St. Thomas, where the mails from all places north and south of that point intended for Europe, or for places on or beyond the isthmus connecting the two American continents, will be brought by a supplemental and smaller class of steamers, for conveyance to their final destination.

The distance from the English channel to St. Thomas's will be accomplished in about 12 days, and from St. Thomas's to the port of Chagres-on-the-Main in about seven more, so that the whole distance will be run in about 19 days, against 25, and occasionally more, now occupied in traversing this length of waters. The mails from all ports and places, right and left of this line, passing through St. Thomas's, being collected and brought to that island by the secondary class of steamers of which we have spoken; and the great English mail being no more taken round through the Antilles, or to the points north of the main line, will be carried straight to the Gulf, or straight home to Southampton. The class of steamers traversing the trunk line will be quite equal in strength, power, and accommodation, to any at present frequenting the ports of this island. And considering the highly superior qualifications which it is in the power of our building and engine-yards to give them, there is no reason to doubt that these new vessels will fully accomplish the high purposes to which they are destined. We wish that their arrival and departure was arranged to take place more frequently than is at present proposed. The coming in and the going out of a Pacific Ocean mail once a week, instead of once in three weeks, would be a thing much to our mind; but we have reason to be thankful for a more full and regular communication with our brethren at the Antipodes than hitherto it has been our good fortune to enjoy.

In the MINING JOURNAL of May 5, we inserted an interesting communication from Mr. J. DARLINGTON, of the Astley and Tyldesley Collieries, near Manchester, detailing the operations of Mr. GOLDSWORTHY GURNEY, to extinguish the fire in one of his pits, which had raged furiously for several days, and some further discussion on the subject appeared in subsequent numbers. We have received the details of an explosion in a coal-pit, worked by the Brymbo Colliery Company, near Wrexham, by which two poor fellows lost their lives, and a third is not likely to recover, and which will be found elsewhere. From the explosion the whole body of the workings caught fire, and notwithstanding the sealing-up of the shafts, and even letting water into the pit up to Wednesday last, the fire was uncontrollable. As Mr. GURNEY's plan of passing carbonic acid and nitrogen through the workings, aided by jets of high-pressure steam, was so singularly successful in Mr. DARLINGTON's case, we cannot do better than recommend the owners of this colliery, should other means fail, to have recourse to a similar process, as Mr. DARLINGTON has clearly shown that the plan is by far more economical than drowning the mine, and then having to pump out the water.

On three points in the wide horizon of the colonies there recently rested three little clouds, which, by the temper and address of the Government, have been now happily dispersed. The Ionian Islands, Canada, and the Cape of Good Hope, have each, in their degree, exhibited a criminal departure from their duty as subordinate members of a great political state, and have read to the world this deplorable lesson, that it is safer, and more salutary, to govern them with a stiff hand and a stern voice than to administer their affairs with a mild and a paternal benignity. The latter of the three enumerated settlements has had the point contended for conceded to it, for it scarcely, as it was thought, became the place, or the dignity, of the Imperial Government to enter seriously into a contest with so stripling and so naked a colony as the Cape of Good Hope. We could not, as it appeared, lift our right hand, in a hostile sense, against a settlement so weak as not to be able to bear so much as the weight of our little finger. The outline of the case, as against the African colony is, without any of the fillings up, quite bad enough. It resembles nothing that we can remember more nearly than the act of some petted and parlour favorite, which, moved by a sudden and insufficient impulse, bites at the legs of its too indulgent master. Too much at least of this species of behaviour has shown itself at the Cape. The blind leaders of the people there have, in their blindness we trust, done what they could to dishonour and stigmatise the hand that feeds them so liberally to-day, and defended them so heroically yesterday.

In Canada the annexation bubble has burst, in consequence, it would seem, of the mere attenuation of its own tissues. There have been, it is true, of late some anti-annexation meetings held, for the purpose of disabusing the Canadian mind of its partial misapprehensions on that subject, and also for declaring the unabated attachment of the Canadian people to Great Britain, and to the general policy of its Government. But the annexation crotchet, wanting, as it did, any popular element to sustain it, went down by the mere frailty and folly of its original structure. The actual levying of arms in the Ionian States against the Government and authority of England, was an act so capital and so flagitious, as not to admit of any compromise, or to justify a consent on the part of this country to a pacific arrangement, had the Ionians been, which they were not, earnest and penitent petitioners for such an arrangement. Punishment, commensurate with the guilt of the leaders in that island mutiny, has been administered, and order and good government vindicated, we trust for all time to come in this jewelled region of the Ionian Sea. In this way on three points of the far off horizon, where a small shadow seemed to be rising into form against us, the better sense of the people, and the cautious and discriminating vigour of the Government, has cleared the political firmament of all present fears.

We need not again guard ourselves against any misconstruction on the part of our numerous friends in the colonies, of our opinion of the policy of transportation beyond the seas as a secondary punishment for criminal offences. On that subject our opinions are before our readers, and we have no occasion to alter them either in form or substance. But in the tempest recently raised at the Cape, we have seen, as clearly as we ever saw an abstract proposition in our lives, that the law, the practice, and the common sense of the question was wholly with the Government and wholly against the colony; and we trust that the recent instance of insubordination and resistance there, will be a negative lesson to contemporary colonies, and to posterity for ever.

Among the reports of mine accidents, which will be found in another column, it is our painful duty to record a most melancholy occurrence, whereby the parents of five children, with their eldest daughter, have suddenly met with a violent death through the breaking in of an old disused shaft, situate only about eight yards from their cottage, by which four almost infants are left orphans. In the present instance, it appears that no blame can attach to any one, the shaft having been covered over in bygone times, beyond the memory of any inhabitant of the neighbourhood; but it not the less affords a most awful lesson to the proprietors of mines and collieries in all the mineral districts of the kingdom, of the imperative necessity of securing all deserted shafts from the possibility of accident. In Cornwall the old shafts in woods, fields, and, in some instances, on commons, within a few feet of the highway, are left open, to the imminent danger of the traveller; but even this appears preferable to those hidden pitfalls with which the coal districts abound, and which, being covered with timber, not always of the stoutest dimensions, must, at some future time, from the rotting of the boards, either fall in itself, or, probably, remain, as in the instance now mentioned, until some unfortunate individual, or more, walk into the snare, and be suddenly launched into eternity. We do think it ought to be made imperative, under very heavy penalties, not to leave open abandoned shafts, as in Cornwall, nor to cover them in as in the collieries, but that they should be substantially railed round, at a safe distance from the edge, that both human beings and cattle could see their danger, and avoid it, either by day or night. The expense of such a measure is in itself so trifling compared with the value of human life, or the magnitude of mining interests, that we cannot believe the mere avoidance of the cost is the ground of the evil. Unfortunately, fatal accidents are so numerous, that they are looked upon as common-place occurrences, and the means whereby scores of valuable lives might be saved are lost sight of, merely from a thoughtlessness, which too strongly marks all classes of the mining community, who, from being used to danger, seek not to avoid it. It is a subject well worthy the consideration of the Members of Parliament for the mining counties.

The principles of assurance so vastly extended on lives during the past 30 years, and applied to guarantee and other relations of life, are still capable of being much more widely disseminated. There can, we think, be but one opinion on the subject, that to the guarantee of common debts, bills of exchange, promissory notes, banking accounts, bonds, rents, and monetary risks of every description, the principles of assurance may be most safely and advantageously applied, preventing much distress and ruin, and securing handsome profits to a company commencing business on such a basis. Although commercial and trading prosperity is of a varying character, and at a first consideration it might be deemed impossible to arrange any tables of premiums which could be depended on, the contrary is the fact; it is now clear beyond a doubt, and founded on a series of calculations extending over a number of years, that although individual years widely differ in the amount of insolvency, by taking a decennial period it is found that but very little variation occurs, and that the difference has been gradually in favour of the later calculated periods. An address to the bankers, merchants, landlords, &c., of Great Britain, has recently been circulated by Mr. C. S. CANSDELL, being the outline of a plan for the application of assurance to the purposes above-mentioned, with a suggestion for the economical management of embarrassed estates, combined with the guarantee of dividends, and compositions thereon. In this he states that the losses from insolvency of debtors is estimated, for the United Kingdom, to average 65,000,000*l.* sterling, a sum about equal to the entire government and local taxation of the country, inclusive of the interest of the National Debt. Personal vigilance does not suffice to protect property from the risks in question any more than from other casualties affecting it, and hence the importance of inquiring whether such risks may not be annulled by an adoption of the principles of life assurance. The nature of these principles are generally known as applied to lives, or the destruction of houses, *ships*, and the property contained therein, by fire; and they are equally applicable to casualties of every class whereof the records are constant and complete; and Mr. CANSDELL shows, by indisputable evidence, that while advantage has been taken of assurance to neutralise many descriptions of calamity, the system may, with great propriety and advantage, be extended to the assurance of commercial capital, constantly adventured on credit. The author then shows that if we confine ourselves to any single year, the number of insolvencies in any one, or any number of trades, must, of course, exhibit a false proportion, exceeding, or falling short of, former ones, as the year may have been prosperous, or the reverse; but as we extend our observations over decennial, or longer periods, discrepancies vanish, and returns, in themselves anomalous, combine to afford uniform results. Upon data so collected assurance may be soundly based, and while the profit to be realised thereby may be calculated beforehand, more readily than in many other branches of assurance, the insurer exempts his adventures from hazard, and speculation is converted into certain mutual profit.

Having proved, by a concise statement, that the principle has long been at work, without the name, in all commercial transactions, that insurance brokers, produce brokers, commission merchants, and other trades, for an increased commission, guarantee certain returns, he says—"Now, if we glance for a moment at the range of objects already embraced by the system of assurance, we see the ship and her cargo committed to the perils of the wind and wave—the warehouse with its merchandise—the dwelling-house and its chattels—the stack and the granary, all exposed to the frequent devastations of another element, not to exclude the growing crops liable to the destructive effects of hail. We see man threatened with an inroad upon his resources from the ravages of disease among his cattle—to the paralysation of his industry from its attacks upon his own person. We see him surrounded by dependents, whom his sudden or premature death may leave helpless or defenceless. Even from the depredations of unfaithful servants he is efficiently secured, and the *employé* himself provided with the invaluable advantage of a guarantee which it is so difficult to obtain, and so embarrassing to require, from the kindness of a friend. The system, however, must be regarded as incomplete while it remains unextended to the immense amount of capital constantly adventured in trade and invested in rentals, equalling, if not exceeding, in the aggregate, all that portion of the public wealth to which the system of assurance has hitherto been applied; and I am thoroughly convinced that so obvious a deficiency cannot much longer escape attention from the all-important interest which is concerned in supplying it." The writer concludes with a suggestion relative to the administration of bankrupts' and insolvents' estates, by which a large saving would be effected in law courts and accountants' expenses. An assurance company, founded for the purposes here recommended, would undertake such administration—the debtor to make a full disclosure of his affairs, which, being investigated by the accountant, upon his favourable report an assignment will be taken, and the creditors waited upon for their consent to the best composition the assets may warrant, to be immediately liquidated, less a discount, as soon as the effects are realised.

IRON, HARDWARE, AND METAL TRADES' PENSION SOCIETY.

At the seventh election of pensioners to this highly-useful institution, which took place the last week in November, there were no less than 20 candidates, and much interest was excited. Out of 15 male candidates four were from Birmingham, two of whom obtained their election. At the close of the poll, and while the scrutineers were absent making up their returns, the Hon. SECRETARY remarked that, at the general meeting in May last, it gave him much gratification to report the addition of between 200 and 300 new members, and he was much pleased to say that since then not a month had passed without an increase: 56 new subscribers had been added, and there was every reason to believe that a far greater number would be added at the commencement of the year 1850. Very few living subscribers had left them; but death had been busy, and to this was to be attributed the falling off in the income which they had sustained. Among these were Mr. Wm. Footham, Mr. Wm. Talbot, Mr. F. A. Tiddeman, Crowley Millington, Esq. (one of the first vice-presidents), and Edward Cureton, Esq., another, who was also one of the most liberal contributors to and warmest friends of the society. The speaker passed a high eulogium on this latter gentleman, and stated that his sister, who had always, with him, taken much interest in this society, as soon as she had in some measure recovered from the shock of a double bereavement (another brother having perished at the head of his regiment in India about the same period), forwarded 30 guineas, in honour of his memory, to the Asylum Fund. Anxious that all the contributions should be well and wisely expended, the investigation of every case submitted is carefully and critically entered into; and those only are declared eligible who are worthy of the society's bounty. One female pensioner, elected in Nov., 1847, from a favourable change in the circumstances of a son, had been withdrawn by him from the pension list in a manner highly creditable to him; and he had since placed his name among the life donors, having previously been an annual subscriber.

From the statement of accounts, it appeared that the receipts from the 1st January to 24th November last amounted to 1189*l.* 11s. 1d., of which 110*l.* 13s. 7d. was dividends from stock, 393*l.* 15s. donations, and 682*l.* 2s. 6d. annual subscriptions. These, as compared with the previous year, show an increase of 14*l.* 11s. 3d. on dividends, 22*l.* 16s. 6d. on donations, and 206*l.* 17s. 6d. on annual subscriptions—making an increase of 244*l.* 5s. 3d.: 500*l.* additional Three per Cent. Stock had been purchased, at a cost of 454*l.*; and assuming the subscriptions and donations to be the same in 1850, there would be about 810*l.* available for the general purposes of the society; but the working expenses of the society would reduce this sum to about 600*l.*—The Hon. SECRETARY then made a most earnest appeal to the company to exert themselves to bring in their friends as subscribers *within the present year*; those who could afford it to double their subscriptions, and life and ten-year members to become annual subscribers as well, to enable them, in May next, to return at least six additional pensioners out of the fourteen rejected at the late election.—The scrutineers having made their return, the CHAIRMAN (T. B. Simpson, Esq.) declared the successful candidates to be G. Austin (London), J. Large (Birmingham), J. Fletcher (Birmingham), W. Dods (Westminster), Sarah Ann Smith (Southwark), and Mary Heath (Chelsea).

A resolution, expressing the respect of the meeting for the memory of its deceased members, and condolence with their surviving relatives; another, conveying the thanks of the meeting to Miss Cureton, for recalling the society, by her generous and affectionate tribute to the memory of her late brother, to the consideration of providing asylums; and votes of thanks to the scrutineers and honorary secretary having been carried unanimously, the proceedings of this very interesting meeting terminated with a vote of thanks, also carried unanimously, to the gentleman who had officiated as chairman. A new list of annual subscribers was got up on the spot, and we hope these trades will make such a demonstration, as will prevent any fear of a falling off in funds in the ensuing year.

CERRO DEL BOTE MINING COMPANY.

In another column will be found an interesting communication from a correspondent, signed "Z." on this valuable mine, to which we would direct particular attention; and we are happy in being able to state that there is every probability of the shares being all taken up readily and without delay, which will enable the company to proceed at once to set to work with spirit, and develope the real character of the vein at a greater depth, where, from every indication that has presented itself to those practically acquainted with the peculiarities of the mineralised strata in Mexico, it is probable great riches will be discovered. When it is called to mind that the property comprises three setts, San Eligio, San Jorge, and Nueva Valenciana; in the first of these only has any trial been made, and that trial only on one of the veins which exist in the sett, and that the returns from this one isolated spot have reached the somewhat extraordinary high amount of $1,500,000, of which sum $265,000 were re-expended in sinking a shaft for drainage, and the erection of a steam-engine and the necessary buildings thereupon, which is now completely established and fully effective; it must be allowed that the mine is, at the present moment, in a most favourable position for further exploration, and the shareholders will have all the benefit of this large outlay; while the capital proposed to be raised will be ample for prosecuting either to a successful issue, or deciding most satisfactorily that further outlay would be injudicious and useless. The depth now obtained in the present ore ground is about 150 varas, while the drainage is effected to upwards of 200 varas, and, by examining the vein at a depth of 20 to 30 varas below the present workings, it is estimated that a definitive opinion can be formed of the real value of the vein. Numerous other veins traverse the property—the San Jorge and Nueva Valenciana of which are champion lodes, and having been traced for two miles, there is every reason to believe that they are a continuation of the famous Cantera and Quebradilla veins, the latter of which, up to 1810, yielded 7000 cargas of rich ore weekly. We cannot but think that those shareholders in the old company who have not availed themselves of their privilege to obtain shares will, at a future day, exceedingly regret their not having done so.

QUEBEC MINING COMPANY.

A report from Mr. Bonner has been received from the company's station at Mica Bay, which states that the new smelting-furnace was tapped for the first time on the 9th October last, producing from undressed ore a regulus of white metal of from 70 to 80 per cent., thus proving that smelting with wood, which is abundant, is perfectly practicable. The operation had, however, been retarded by too much haste in the desire to meet the wishes of the shareholders to ship copper before the stopping of the navigation for the winter. The refining-furnace at the date of the report (Oct. 16) was nearly completed, in which the regulus would be reduced to fine copper. New veins had been discovered in the great lode at Patterson's Mine, containing solid grey and yellow copper ore, superior to any that had previously been found, and the object was to get sufficient ore to supply the furnaces during the winter, when the stamps cannot work. From the gradual concentration and improved state of the ore in depth, there is every expectation that at still greater depths further improvement will be found. In the old workings below Le Mesurier Mine, a vein had been exposed of solid grey ore, fit for the furnace when dressed by hand, which, if continuous, will afford an additional supply during the winter. All the various departments were working harmoniously together, and the people were quiet and orderly.

We regret to learn that, in consequence of the delay (to call it by no harsher term) of the Government in settling the claims of the Indians for the mineral lands about Lake Superior—claims which they have acknowledged, but have hitherto paid only with promises—a rising among the natives has taken place, and caused much disturbance on the property of the Quebec Mining Company. So serious had the outbreak become, that it had been found necessary to send 150 of the Rifle Brigade, with 20 baggage waggons, from Toronto to the scene of action. Two British commissioners were sent in the autumn to negociate with the Indians on the spot; but, instead of meeting a council of the chiefs, they tried to settle individual bargains; but, after all, it appearing they had no power to offer any sum per acre, and the patience of the Indians being exhausted, the council broke up, and determined to capture the mines and works. There is reason to expect dreadful tidings of slaughter, as it is said the Indians, who are led on by a Mr. Macdonald, late sheriff of the Gore district, muster 1000 men, and will be further increased by Indians from the United States.

It is but justice to correct an erroneous rumour which has been circulated, that the Quebec Mining Company had not paid for their lands. They paid the Government $400 for the location, and have since paid $60,000 as per centage, or royalty, and the question at issue is entirely one between the native tribes and the executive. Their conduct bear a striking contrast to that pursued in the Union. Whenever a deputation of chiefs are desirous of an interview with the Government, it is always attended by a Government officer and an interpreter; they are conveyed without expense to and from the capital, their grievances listened to, and redressed when found to exist. All acquisition of newly-settled lands are paid for handsomely—a sum of money down, and an annuity as long as the tribe exists. This treatment, in numerous instances, has altered their habits, and has induced whole families to lean to civilised customs. If the statement be true that the Indians have not received a single penny, there has been a great want of fairness and absence of good policy on the part of the Canadian authorities, who, rather than raise enemies in the natives at this critical juncture, when the colony is threatened with dismemberment from the mother country, ought at least to pay their just claims. The next arrivals will be looked forward to with much painful interest.

SUPPLY OF PURE WATER TO THE METROPOLIS.

Numerous as have been the proposals for the supply of pure water to the metropolis, some suggesting Artesian wells, others taking up the water from the Thames above tidal influence, the Wandle, the Lea, and other tributary streams, ingenuity appears to be still unexhausted in devising new schemes; so that it is probable a less objectionable plan may yet be brought into active operation than any which has hitherto been suggested. We have now before us two prospectuses for carrying out this important object; one by Mr. George Remington, in which a plan is suggested for supplying a large quantity of water direct from the Thames for sewage and washing purposes, and another portion of pure water to be distilled by the engine-furnaces employed for raising the former. He calculates that 100 tons of coals per day would distribute 95,040,000 galls. per day of 24 hours, at an expense of 178*l.*, or 2225 gallons for 1d., of which 6 gallons would be distilled water; the cost per house would be 29s. per annum. As this cost is high, even as compared with present charges, the proportion of distilled water by far insufficient, and the distillation of an increased quantity would add enormously to the cost, we fear this plan is by no means likely to succeed.

The other plan under notice is a bold one, grappling with the very origin of the evils complained of, and one which, if prosecuted, would provide a better and more abundant supply, at less cost, than any other plan hitherto suggested. Mr. James Vetch, in his proposal, is evidently quite aware of the great difficulties to be contended with—the supply of water to the metropolis being at present in the grasp of nine or ten companies, who have divided the metropolitan area among them, and hold great powers under Acts of Parliament, to enable them to make the most of their investments. The rates imposed are various in amount and mode of assessment; the periods and quantities of supply are different; the quality of the water is unequal, and everywhere deficient. To encourage new companies to arise and compete with the old ones would only multiply the masters of supply, complicate the recipients and distributaries of the water, increase the outlay for works of a partial and disconnected nature, and would render the task of placing the control of supply still farther out of reach of the consumers. The author of the plan takes for his example the 18 turnpike trusts north of the Thames, which, through the exertions of Joseph Hume, Esq., and some others, were, with one exception, consolidated into one. Vested rights, annuities, loans, and debts had to be arranged, power was given to raise a sufficient sum of money, debts and loans were paid off and consolidated, the number of gates were diminished, tolls reduced, and but for the introduction of railways the whole outstanding liabilities would soon have been discharged, and the gates abolished. In order to meet and overcome the great moral difficulties of the case, it is proposed that the water ratepayers of London be invited to form themselves into an association, under the management of persons elected to represent a certain number of nearly equal districts, into which it might be most convenient to divide the metropolis, a committee appointed, and an Act obtained, with power to purchase all the rights and properties of the existing companies—the mode of supply to be kept on as usual until the new service could be carried out, and this to be effected by the gravitation principle, similar to the New River.

He proposes that this river of 39 miles should be diverted into an aqueduct of 20 miles only, formed of brickwork in cement, and covered over to keep the water cool and clean in summer, and unfrozen in winter. That further supplies be taken up by aqueducts, and delivered into reservoirs from the Lea, Colne, Wandle, Dart, Mole, and even the Wey if necessary, which would give an ample supply of excellent water, equally economical, and void of difficulties in execution. This is, undoubtedly, the best means of grappling with the question, and remedying the existing evils; and, although the plan must necessarily be costly, the comfort and health of upwards of 2,000,000 of people are primary considerations, and eventually the supply would return a large interest for the outlay.

PURE WATER FOR DOMESTIC AND OTHER PURPOSES.*

The importance, in a sanitary point of view, of being enabled to obtain pure and wholesome water for culinary and other domestic purposes, has now become so well understood and established an axiom, that it would be superfluous to dilate upon its necessity; but seeing that, even in this age of advancement and discovery in chemical science, the supply of water to all large towns is of a very inferior, not to say injurious and dangerous, character, the great object for consideration is the mode by which a more healthful and economical supply is to be obtained. In the *Mining Journal* of 27th October, we inserted the specification of a patent recently taken out by Mr. John Horsley, of Ryde, Isle of Wight, for the purification of water, by chemical and mechanical means, for domestic, manufacturing, and chemical purposes; and a pamphlet has been recently published at our office on the subject from the pen of that gentleman. He therein truly says (a fact often insisted on in our columns) that filtration, by the best filters ever devised, can only render turbid water clear, or remove that which is floating or mechanically suspended in it, but can never act on that which is held in solution; it is, therefore, utterly impossible that filtration can render *hard* water soft. Filters simply intercept the grosser feculent and other matter, and thus perform the office of a strainer; and the amount of depuration must ever be, of necessity, in the mere ratio of the size of the orifices, or cellular pores, of the materials employed as filtering media—from the filters of Robins or Lipscombe in which sponge and other adjuncts are employed, to oolite and artificial stone. The author further says—"There is more than sufficient evidence to prove that the earthy or calcareous matter held in solution is the true matrix of the animalcular ova, or germs; and, by the complete decomposition of the calcareous combination by the new processes, the germs are at once liberated and instantaneously destroyed. The water, thus entirely cleansed, will remain unaltered in excellence and purity, and free from all interfusion of organic matter for an indefinite period." Having shown that by the use of hard water in washing and scouring a great waste of soap ensues, and that all the nostrums sold as washing powders are caustic alkaline products, and destructive to the fibrous texture of the articles undergoing the process, he describes his arrangements for preventing incrustations in steam-boilers—a very prolific source of explosions. While Dr. Ritterbandt's and other processes only neutralise the carbonate of lime (but one cause of incrustation) by the use of baryta and oxalate of potassa, under Mr. Horsley's patent the sulphates, the fluates, and other indurating ingredients in incrustation, are entirely removed. It might appear, on a superficial view of the subject, that by the use of baryta and oxalic acid (two deadly poisons), water would be rendered dangerous, and unfit for culinary and drinking purposes. Such, however, is not the case. Previous to treating any water, a series of careful experiments are to be made, in order to ascertain its character and composition, and the materials carefully adjusted, so that in every instance they are rendered inert and harmless, because insoluble salts are formed, which are either separated from the clear water by subsidence, decantation, or filtration. In employing baryta, it unites with the excess of carbonic acid necessary to render the carbonate of lime or chalk soluble, and both the carbonate of baryta and the chalk are precipitated; while another portion of baryta unites with the sulphuric acid, forming the sulphate of lime; and thus the sulphate of baryta and the lime are thrown down from the water, leaving nothing therein. When muriate of lime is present, oxalate of potassa is used—the oxalic acid of which unites with the lime, and the potassa unites itself with the muriatic acid, previously in combination with the lime. What were formerly carbonate, sulphate, and muriate of lime, have become carbonate, sulphate, and muriate of potassa—difficultly soluble salts. The several processes recommended by the author are founded on the unalterable laws of chemical affinities, and appear to be adapted for rendering all descriptions of water pure, let them hold in solution whatever impurities they may.

* An Account of several entirely New Patent Processes for Purifying the Waters of Cities, Towns, and Private Dwellings, as well as on Shipboard at Sea, whereby they are deprived of all Adventitious, Mineral, Vegetable, and Animal Matters, and rendered as soft as the purest Rain Water; also, for infallibly preventing Incrustations in Boilers in Steam Factories and on Railways. By JOHN HORSLEY, Patentee, Practical and Analytical Chemist, Ryde, Isle of Wight. Author of "The Chemistry of Poisons," &c.—London: published at the *Mining Journal* Office, 26, Fleet-street.

WROUGHT-IRON FROM ANTHRACITE COAL.—The *Newark Advertiser* (U. S.) says:—"We have just examined an invoice of superior hoop iron, from the works of Mr. Willis, at Powerville, made with anthracite coal by the new process discovered by Mr. Salter, of that city, which we recently had occasion to notice [see *Mining Journal*, Nov. 10]. This is the first iron produced, in a large quantity, by this process, which effects a saving of at least $20 per ton, merely by substituting anthracite coal for the charcoal now universally used. The patent is now in the hands of a number of gentlemen, who have not yet organised themselves into a company, and it is their purpose, we believe, to sell the right to the manufacturers of iron generally."

The Metallurgical Treatment of Ores.

By JOHN MITCHELL, Esq., F.C.S., author of *A Manual of Practical Assaying*, &c. &c.

No. XXXVII.—[*Continued from December* 1.]

Notwithstanding, however, all these experiments, and the likelihood of greatly improving the quality of the metal produced, the beds are generally made of sand for certain qualities of iron, and in other cases of crushed cinder, or a mixture of cinder and mill scale; its depth is generally from 2½ to 3 inches, and each operation any holes that may have formed in it are repaired.

The fragments of iron to be submitted to the puddling operation are placed in the furnace in piles near the bridge; the piles should just touch the crown of the arch forming the top of the furnace. There ought to be no large cavities existing in the pile, because too much air would pass through, and effect a too severe oxidation; and not only this, but much space would be lost in the furnace. The door is now closed, and the damper opened, so as to give as intense a heat as practicable, to effect the commencement of the fusion of the fine metal in about 20 minutes. It first of all becomes reddish white, softens at the edges, and then runs, or drops, on the furnace bed. The door is now opened, and the iron stirred with a paddle, taking all the metal which appears likely to fully fuse from the neighbourhood of the bridge, and removing it to a cooler part of the furnace. The object is now to get the metal into a semifluid or pasty state; this is arrived at as follows:—Supposing the fire to have been so intense as to render a considerable quantity of the metal liquid, the damper is shut, and sometimes even a portion of the fuel removed to cool the furnace; if, on the contrary, there is not sufficient heat, the working door is closed, and the damper opened until the necessary temperature is attained. When the iron is in this pasty state, it is continually stirred and raised from one part of the furnace to another, in order to expose the whole to the flame. After the metal is evenly spread on the bed, it is again continually stirred, so as to offer as much fresh surface as possible to the action of the flame. Now commences the refining, properly so called; and if the workman is active and skilful, he can, in this stage, prevent a very considerable loss. The carbon escapes as carbonic oxide, burning with a blue flame, and causing a lively effervescence. The mass becomes more and more viscid, and the red colour brightens in proportion as the jets of flame become less frequent. If, during this process, the mass becomes too hard, the heat is increased, as already explained, until the temperature is as desired. In proportion to the disengagement of gas, so does the refining proceed; the metal becomes less fusible, and the stirring is continued until the whole has assumed the state of fine grains—sandy, in fact. The slags formed gradually run off, owing to the slight inclination of the furnace bed. The end of this portion of the operation is announced by the pulverulent state of the metal, and the third, or agglutinative, period is at hand. The heat is raised to such an extent as to cause the particles of iron to weld together; when the metal is in this state, the workman collects a small portion on a paddle, which nucleus he rolls over the bed of the furnace; it increases in size, after the manner of a rolling snowball; each ball, when of sufficient size, weighs from 60 to 70 lbs., and as soon as formed is set aside in the hottest part of the furnace, so as to become more thoroughly agglutinated, and to allow as much as possible of the attached cinder to sweat out. The lumps are then subjected either to the hammer or to the rollers, to press out the excess of cinder, and reduce the metal to its ordinary compact state. In order to improve the quality of the metal thus produced, it is carried to furnaces, termed "reheating" furnaces, which are similar in construction to the puddling furnace, excepting that the dimensions are larger. The bar-iron from the puddling furnace is cut into small fragments, by means of a powerful shears; the fragments are placed in the reheating furnace in heaps of such a size as to form a bar of iron. In this furnace it is important that as little atmospheric air as possible can enter; indeed, it would be right to make the doors so tight that no air passes into the furnace excepting through the fire-grate. When the metallic heaps, or bundles, have arrived at a welding heat, they are removed, passed through the rolling-mill, and formed into bar-iron of the necessary sizes. Of late years the combustible gasses escaping from the blast furnace have been employed for heating the puddling furnace; the chimney of which furnace is sufficient, when hot, to produce the requisite degree of draught. The current of gas can be regulated at will, and is burnt by admixture with suitable quantities of air, giving a long flame, which completely fills the furnace. The temperature thus obtained is sufficient for puddling, but it is stated the operation is difficult to conduct; the loss is even greater than in puddling with coal, and the quality of the iron variable.

The various phenomena presented by iron during its refining in the reverberatory furnace can be very readily explained by the properties which iron exhibits at a high temperature. The bluish grey iron, which is not particularly rich in carbon, and which is only obtained from refractory mine, refines very difficulty by roasting in air. If the operation be very prolonged it becomes brittle, or, rather, it behaves as an incoherent substance, because the graphite interposed in a free state between the particles of iron are not free to move in the interior of the mass, as is the case with white iron, in which the whole of the carbon is combined, and which, in order to keep an equilibrium of constitution, is continually carried from the centre to the surface, where it is oxidised. It follows, then, that the action of a current of air on grey iron is to oxidise to a considerable depth, without entirely destroying the admixed graphite. This essential difference in the properties of the two kinds of pig-iron, proves, in fault of direct proof, that the greater part of the carbon contained in one is in a free state. Thus, by a prolonged roasting and feeble access of air, white iron is converted into malleable iron, without undergoing any very considerable loss, whilst grey iron only loses in this operation its small quantity of combined carbon—the graphite not burning entirely, at least until the metal is nearly wholly oxidised. This subject I have already written on some two years since, in some communications to Mr. R. Mushet, through the columns of this Journal.

By contact at a high heat with some slags and other substances which give up their oxygen readily, the two kinds of pig metal should behave as in a current of atmospheric air. The operation, however, would be rather longer, and there would not be so much loss.

The changes which cast-iron undergoes by roasting are very slow, but become exceedingly rapid when the temperature reaches that point at which the iron softens; it is then that decarbonation is effected most rapidly. Again, hence it follows that white iron, which can longest retain the soft and pasty state, should yield its carbon with greater facility than grey iron, which almost instantaneously passes from the solid to the fluid state. See a former paper.

[*To be continued in next week's Mining Journal.*]

THE ORIENTAL BANK.—The annual meeting of proprietors was held on Thursday, at the offices, when the dividend declared was at the rate of 7 per cent., and the report and accounts were unanimously adopted. The chairman (Mr. Harry G. Gordon), in presenting these documents to the shareholders, invited full discussion, premising that further information might be desired; but not a single question was asked, and the remainder of the proceedings merely consisted of complimentary votes to the board for their services, and the confirmation of resolutions respecting the forfeiture of shares in arrear.

THE GENERAL ANNUITY ENDOWMENT ASSOCIATION.—The twentieth annual meeting of this association was held, on Thurday, at the London Tavern, Mr. Parkin in the chair. The report stated that 60 members, holding 135 annuities, had joined the society during the year; that the amount of capital on the 30th September, 1849, was 236,215*l.* 0s. 9d., being an increase during the year of 9857*l.* 12s. 10d., independent of the sum of 11,831*l.* 18s. 9d., which had been paid to the respective annuitants. The payments of those members who had discontinued their premiums during the year, added to the sum which had accrued in former years, amounted to the sum of 25,495*l.* 4s. 11d., which was carried to the credit of the association in the amount of capital. The directors had been informed of the death of nine claimants holding 14 annuities, and of the marriage of three claimants holding five annuities, all on the civil fund; 37 members holding 63 annuities on the civil fund, and three members holding six annuities on the military and nautical fund, had died during the year. In reference to the desire expressed by the members at the last meeting, the directors regretted that they had not succeeded in obtaining a house suitable for a change of residence. From the financial statement it appeared that the total civil fund was 228,058*l.* 17s. 8d., and the total naval and military fund amounted to 8154*l.* 3s. 1d. The following was the number of members admitted—civil fund, 3112; nautical and military, 217; number of annuities on the civil fund, 6112; nautical and military, 314. The amount invested within the year, was 21,416*l.* 12s. 11d.; annuities paid, 11,831*l.* 18s. 9d.; balance in the treasurer's hands, 339*l.* 17s. 4d. The report was unanimously adopted. The four retiring auditors were re-elected, and 100*l.* fixed as payment for their services.

EXTRAORDINARY DISPATCH IN RAILWAY TRAVELLING.—The Post Office authorities of London having for some months sent the Paris letters by Calais, thereby avoiding the Boulogne and Amiens line, in spite of the remonstrances of the French Post Office and the petition of the railway company, a committee was appointed specially charged to endeavour to get the mails sent by the Boulogne. To back their efforts by an interesting fact, to show them that this route would save time, they (Messrs. Wright, Ivyleafe, and Potter) left London, on Tuesday morning last, at half-past 4 o'clock, arrived at Folkestone at half-past 6, left at 7, and arrived at Boulogne at 20 minutes past 9, at 10 minutes past 11 they reached Amiens, and at half-past 1, Paris—thus performing this unprecedented journey in 9 hours, of which 8½ were spent in actual travelling. *Galignani's Messenger* published the London morning news in its afternoon edition. This is the nearest approach to the annihilation of time and space which has yet been achieved.

CALEDONIAN AND DUMBARTONSHIRE.—This line has been leased for six years to a private firm of contractors. The amount required to complete the line is 200,000*l.*

A GLASS SEWER.—It is proposed to lay down a glass culvert for the main sewers of Rugby. It has been recommended on account of its smoothness and general economy.

Original Correspondence.

THE HOT-AIR ENGINE v. STEAM.

Sir,—Perhaps you will allow me, in a quiet and fair way, to give what I trust will be found a correct view of the abstract merits of air and steam, when considered with the same quantity of heat, which, as the author and advocate of the air-engine has challenged such a comparison, I must take it for granted that it is no less his wish than that it is certain that fair discussion is calculated to elicit the truth, which I also believe I may affirm is the object the *Mining Journal* ever has in view, in the control exercised over the correspondence presented for insertion in its columns. There are two modes of comparison—the one of practical results, and the other of the abstract, or inherent, force generated by a definite quantity of heat. This latter is altogether irrespective of practice, except that it should be the aim of practice to render such inherent, such abstract force, or principle, useful to the fullest extent. It savours more of boldness than of practical experience to say, of mere mechanical adaptation, that it cannot, or that it will not, ere long, bring into useful operation that vast amount of force which is daily and hourly thrown away by our present mode of generating and using steam—the value of which may be made to convert many of our now loosing speculations into highly remunerative ones. The most important question in this discussion, then, is what is the absolute amount of force imparted by the same quantity of heat when applied to steam and to air? As, if there be not so large an amount of force produced by the combination of a given quantity of heat with air as there is when combined with steam, no ingenuity of argument—no, nor ingenious mechanism—can bring it out in practice; and, perhaps, after all, it will be found that the "fertility of invention and profound intellect," which has rendered the steam-engine what it is, has not been mistaken in giving the preference to steam; but that it does possess the primary recommendation of greater power, with less heat, as well as the many secondary advantages which cannot be disputed, and which I need not enumerate here. But, says your correspondent, pointing to actual practice, what results have you there? He forgets that he has been dilating upon the abstract capabilities of his own system, else it would occur to him that the fair way of putting the question would be to compare them both by the same standard—namely: the inherent force generated in each by the same quantity of heat.

I will, therefore, briefly show the relation in which steam and air stand to each other in this respect; but, before doing so, it is necessary to state what I understand Mr. Baggs to propose, which is, that by the agency of heat, atmospheric air is to have imparted to it an effective force equal to 15 lbs. per square inch, and that the air be cut off at half stroke, and used in the same way as steam is used. Mr. Baggs also proposes that the heated air, previously to its going to the cylinder, should pass through a vessel containing water and steam. How the water and steam are to affect the air, or the air the water and steam, is not very obvious; but to generate a force equal to 15 lbs. per square inch in the air, will require its temperature to be raised to 550°; therefore, one thing seems certain, which is, that if the water in the vessel the air passes through on its way to the working cylinder should attain the same temperature—namely: 550° —Mr. Baggs will surpass us all in high-pressure steam, as in such case it would be above 1000 lbs. pressure per square inch. Perhaps this possibility of his having steam at 1000 lbs. per square inch will diminish his astonishment at my proposing the use of steam at 200 lbs. per square inch. But be that as it may, I know assuredly that it is at once practical, economical, and safe, to generate and use steam at such pressure. Nay, more, if it be not our own fault, steam is as docile, as manageable, and far more safe, when generated under such pressure, than upon the present low-pressure system. I shall, therefore, take as my measure of comparison a pound weight of steam, generated under a pressure of 200 lbs. per square inch, which, supposing it to act expansively until its pressure be reduced to between 3 and 4 lbs. per square inch, the inherent mechanical force it contains will be represented by 69,576 lbs., lifted through 64 inches. The quantity of atmospheric air, when used as your correspondent proposes (after deducting the force requisite to charge the furnaces), will be found to be 10½ lbs. for the same absolute amount of inherent force. In this estimate I suppose the air to be used at 15 lbs. effective pressure, and to be cut off at half stroke. I shall take no note of the allowance that should be made for loss of temperature by expansion, but give to it the full average pressure of 13 lbs. throughout the stroke. In like manner I shall not notice the increased resistance to its passage to the furnace, owing to increased temperature from compression in the air-pump, but merely the 3¾ lbs., which, it is obvious, must be deducted from the 13 lbs. average pressure, as the least possible quantity for supplying the boiler with the same weight of air that is drawn off at each stroke of the engine. We find, then, in the engine, to overcome the friction of its appendages, and for useful effect, an inherent force, represented by an average pressure of 9¼ lbs. per square inch. With the barometer at 30°, and the temperature of the atmosphere 60°, it will be found, as I have before said, that 10½ lbs. of air, when thus abstractedly considered, will be necessary to represent a force equal to 69,576 lbs., lifted through 64 inches. We now come to the question of the heat required by the 1 lb. of steam, and that required by the 10½ lbs. of air; and as experimentalists are not uniform in their statements respecting the difference of the specific heat of air and water, I will take the result of those experiments which are most favourable to the hot-air system, which represent water and air as nearly 4 to 1. For the sake of round numbers, we will take it as 4 to 1, when we have the heat contained in the 1 lb. of steam represented by 4400°, and that in the 10½ lbs. of air by 5250 °; hence we have the air requiring a greater amount of heat than the steam by nearly 20 per cent., or 850° for the same inherent force, which is a very different conclusion to that which Mr. Baggs has stated.

But Mr. Baggs, I perceive, seems to ridicule the notion of thus generating high-pressure steam, and using it expansively; he points to Cornwall, and contends that it is there carried to its fullest practical extent; he expatiates on the imaginary danger of high-pressure steam, and he breaks out in exclamation at the practical absurdity involved in such high-pressure, and such a degree of expansion, as I have above submitted, on account of the assumed insuperable difficulties from irregularity of motion and deranging strain of machinery; but what if all these difficulties are imaginary ones, which assuredly they are, as a clear knowledge of the principles involved, and of the practical means already in existence, by which these objections are removed, will make manifest. But are there no real difficulties to continually extending the pressure, and the expansive action of steam? and if so, it may be asked what are they; are they not dangers from explosion, undue strain of machinery, and irregularity of motion? I repeat that it will, by-and-bye, be universally acknowledged that none of these are the limiting causes to the safe and useful extension of the expansive principle, far beyond what has hither been effected. But the limit to its safe practical and economical extension will be the temperature which, beyond a few hundred pounds pressure, becomes so great as to be highly injurious to the working parts of the engine. This is the only real PHYSICAL obstacle Mr. Baggs encounters at the very threshhold, and from which I perceive he already anticipates difficulty, and proposes to reduce, is 15 lbs. to 10 lbs. per square inch, with the view of reducing the temperature to 406°. Now, before we reach this temperature of 406°, we obtain steam of 260 lbs. pressure per square inch; and, as I have before said, we can, if we wish it, generate steam up to 1000 lbs. pressure, and still keep below the temperature which must be encountered with air to obtain a pressure of only 15 lbs. per square inch.

But what has led Mr. Baggs into such an exagerated estimate of the capabilities of air, has been his taking as his basis the quantity and expansion of air, viewed in relation to combustion. Why he should have done so does not seem to me very clear, as he proposes to heat the air in the same way steam is generated; and it is worthy of remark, that the loss of heat passing up the chimney will be much greater on two accounts by his mode of heating air, than in that by generating steam—first, because the air for motive power will be much hotter than steam; and, secondly, because air is not so quick an absorber of heat as water. Again, the quantity of heat lost by radiation and conduction from his enormously increased cylinder and air-pipe surface, and the high temperature it will require to be kept at, will be no insignificant source of loss.

But, he says, his furnace and engine will occupy so much less space, and be of so much less weight, than the steam-engine. I reply unhesitatingly to him on this head, by saying that I will supply engines and boilers capable of double the duty the air engine could do, which should occupy no more space, nor be more weight, and yet should, at the same time, be perfectly safe and practical in the use of steam at 200 lbs., if desired to work it at that pressure, *and as far as physical considerations are concerned, there is everything to recommend its use*; but mankind will not yet receive the advantages it would confer upon them; therefore I have for this 10 years endeavoured to introduce into practice a pressure of 100 lbs., which with the advantages that the country might derive from the invention, I am sure that the saving would be 20,000,000*l.* sterling annually; but the invention has for all this while been rejected, I therefore, conclude, by wishing Mr. Baggs better success. T. CRADDOCK.

Birmingham, Dec. 11.

CHEMICAL STRUCTURE OF IRON.

Sir,—I am really surprised, though sometimes amused, at the lucubrations of Messrs. Mitchell, Mushet, Ferreus, and Leighton, continually appearing in your Journal, and must needs say, that the idea of carbo-oxide bespeaks the least possible acquaintance with the chemical affections of matter, improperly styled affinities; for as the specific capacity of bodies for thermon as thermosphere, respectively augments with their temperatures, and this augment holds a greater ratio with gases than with liquids, and with these than with solids, the basic components of Fe. O2. and 2Fe. 3O. must separate with augmentation of temperature, independently of the faculty possessed by carbon of arousing new affections of decomposition and componency in oxides of iron.

Mr. Mitchell says, with more of eulogy than precision, "Mr. David Mushet's remarks on Mr. Leighton's cinder theory I take to be conclusive." Indeed! Is puddle cinder, then, not blended in balling with the mass of iron in a bloom, both as it first comes from the hearth, and as it leaves the forge anvil? And does not every stroke of the forge hammer evince, by the exuding cinder and jets of violet coloured flame, that the soft bloom did, and still does, contain this peculiar substance, known as tap-cinder? And as this substance really does exude in the first process of bloom making, mostly when the mass is soft and spongy, and less, and still less so, with the increasing density and incipient formation of "*fibre*," by the unequal extension of the beaten mass, although I totally negative the existence of a carbo-oxide (C.+Fe.+Ox.), as an impossible compound, I agree with Mr. Leighton, that the formation of fibre in bar-iron is determined by, and due to, the laminating action of cinder, which, like the cellulose of plants, in respect of the woody fibre, insulates the ferreous molecules, disposing them into long *striæ*, whereof a beautiful exemplar may be instanced in the act of repeatedly elongating and doubling a mass of treacle toffey, which becomes stringy by the entanglement of air, which representing the particles of iron enmeshed by the cinder, forming a truly fibrous mass of air-entangled toffey.

Mr. Smith's inquiry, how "roasting this cinder, now very fusible, enables it to become refractory to heat and very infusible," and another correspondent's assertion, that "tap-cinder powerfully favours the decarbonisement of iron in the puddling hearth," may be answered—the one being the highly fusible, ter-silicate of iron (tap-cinder), becomes, by calcining with iron, a bi-silicate, and lasty a true silicate of iron, with infusibility, ranking next to silicic acid; and tap-cinder hastens the puddling process by being intercalated with the fused metal, removes its particles so far asunder, as to enable the deoxygenated air in the reverberatory of the puddling-furnace more promptly and effectually to decarbonise the fused carburet of iron collected and disturbed in its hearth. Tap-cinder is a ferruginous glass, which, at the welding heat of iron, is as perfectly elastic as caoutchouc, and, therefore, predisposed, like borax glass, in the process of abnormal welding of cast-steel, so to varnish the contiguous surfaces of the molecular striæ of iron as to glue them together, which, even when cold, as the lesson of spinning and weaving ordinary brittle glass into a flexible and supple garment attests, that if glass (a sex-silicate of soda or potash), combined with a ter-silicate of lead, or manganese, as the case may be, is so capable of being spun into threads, which at the 70th of an inch diameter are highly elastic, flexible, and even *nodible*, how much more elastic must the cellulo-cylindroid grout of tap-cinder be in plates at the 1000th part of an inch in thickness, which undoubtedly more or less envelope and enmesh the molecules of iron, which together become, by rolling and hammering, extended like animal *aponeuroses* throughout the entire length and breadth of every bar of iron?

Greenwich, Dec. 12. —— WILLIAM RADLEY, Ch. E.

MANUFACTURE OF IRON.

Sir,—I admit Mr. Mitchell's explanation of what he intended to express as very satisfactory, as I have a high opinion of his general correctness. I am glad to say it is more so than I could have anticipated; but to guard practical persons, reading for information, against any misconception, his views would require to be developed in more detail. It appears, in his allusion to variableness of quality, he alluded to those marked features of difference which hot-blast frequently induces upon materials, and this so far is correct, but I will leave it to Mr. Mitchell's usual candour to decide whether the passage—"The management of a hot-blast furnace is more difficult than that of a cold-blast furnace, and the yield appears to be more variable in quality," would leave on the mind of an uninformed reader the true impression that the facilities of management and the uniformity of results have been greatly increased by the use of heated air. Words have a very different power of signification, according to the habits of action in the persons using them; fully, therefore, to appreciate the force of the misconception this passage leads to, Mr. Mitchell would have to spend some nights and days in the excitement of struggling with a disordered furnace of each description.

On the application of heated air to materials which have been previously treated with cold-blast, a new set of phenomena are called into existence; these may require to be met by peculiarities of treatment, but these novelties once ascertained, the management is more facile, the results more certain. When an iron-work is established with cold-blast to smelt a new class of materials—and this in degree is true of every new work, as every locality has some varieties—the best method has to be ascertained by experiment, exactly in the same way when the new element of hot-blast is introduced to known materials some preliminary experiment is required. There is nothing, therefore, in this to the disadvantage of hot-blast; on *the contrary*, these preliminary trials can be made with much less care, danger, and trouble with hot-blast than with cold. On the first invention of heated air, there was a decided opinion that it deteriorated the quality of iron. This is now disputed to be a fact. Yet both opinions may be true of their respective times. There has of late years been a very large increase in the use of the red ores of iron. These ores, as having a natural tendency to make red-short iron, may have proved the best corrective for mixing in the furnace with the silicated ironstones of the coal measures; but in many cases the use of heated air never produced any injurious effects, and this has not been confined to those calcareous ores I previously mentioned. As an instance, the Milton Iron-Works, near Sheffield, supplied with ironstone from the carboniferous strata, never did good work until the introduction of heated air, which produced at once a successful result of peculiarly strong iron. The cause is unknown, because *the ironstone has not been analysed*. It might prove very valuable to the noble proprietor, and of public interest, to have this ore analysed by Mr. Mitchell. The proprietor has a reluctance to his tenants using anything but cold-blast, and analysis might point out what was needed to use it successfully.

Mr. Mitchell very correctly explains one of those cases which I characterise as "destructive combustion;" but he will find it not so easy in practice as in theory to apply the remedy. I am aware my late father, in his paper on Blast, has given the same rule for increasing compression with soft fuel, in order to drive the blast past the region of the tuyères before it is consumed; but he had reason subsequently to modify the certainty of this rule, by trying it on a remarkably tender coke without success—in truth it is falling from Scylla to Charybdis. The greater force of the blast only tears the filter more effectually to pieces a little farther from the tuyère. A tender coke is a tough evil: I will not say it is absolutely impossible by some form of furnace or novelty of arrangement to mitigate its ill effects; we cannot say what *may* be done Hot air does something, but it remains a disadvantage which has not been conquered by every exertion. For years the furnaces of one branch of the works of a very eminent manufacturer have barely been able to exceed 50 tons weekly, through this infirmity of the coal. Lately the introduction of a strong caking coke from the upper measures of the basin has doubled the make of the same furnaces.

I cannot deny Mr. Mitchell's charge that ironmasters have not greatly encouraged scientific experiments. But there are some natural reasons which I must be permitted to offer in their defence. The magnitude of the pecuniary interests at stake, completely involved as they are in the efficacy and regularity of the administrative arrangements, makes experimenting a serious affair. Profits very much depend on the trained skill of the workmen. Some new process, to which they were unused, would debar them from making wages, and throw the whole business at home and abroad into confusion. There is so much trouble, nay, absolutely *obstinacy*, required in drilling men into a new system, that not only when the results are uncertain, as they must be generally, but even when the process has been successfully developed at a neighbouring work with profitable results, few will care to take the trouble of adopting it. The larger the work the more difficult the change. Nor is so fluctuating a trade the best subject for experiments. In good times it is well to make the most of things as they are; in bad times it will hardly do to risk making them worse. Add to this the many instances of men who have injured their position as ironmasters by a leaning towards science, and Mr. Mitchell will see that here, as well as *always* when peculiarities mark a class, there is a ground for it.

Mr. Mitchell is quite right that it is better to build the furnace, in the first instance, of the proper form; but, from the above-named reasons, improvements creep slowly in. Furnaces to make iron are built in the same form as those which have made iron before. Thus, fear of doing worse hinders from doing better. The wide hearth of five, six, or seven feet diameter, a part of the improvements explained, and their practical results recorded, by Mr. John Gibbons, in his *Treatise on the Practical Construction of the Blast-Furnace*, has now very generally substituted the former narrow hearth, of three to four feet, or even less, and the advantage is as wide as the measure. But his improved boshes, though generally used in his own neighbourhood, have, as far as I am aware, found their way to only one iron-work in the principality—viz., at Mr. Booker's, at Pentyrch. Mr. Booker has shown a marked desire, highly to his credit, to adopt scientific improvements; but even this desire may have been assisted by local causes. His furnaces, which produce tin-plate iron, are partly supplied with a deposit of ore from the carboniferous limestone, precisely similar to that of the western side of the Forest of Dean. This ore has been as distinguished for the toughness of its iron, as for the difficulty with which it has resisted the smelter. A more critical investigation of the due form of the furnace is, therefore, urged upon those who use it, than on those who rejoice in the facile materials of the northern division of the Welsh coal field.

As the passage respecting the comparative heat of a hot and cold-blast furnace at top, was, in itself, a hypothetical case, not existing, and, therefore, without a practical inference, I naturally looked to the conclusion of the sentence for the point of the remark.

In Mr. Mitchell's last paper (No. XXXVI.) there is an analysis of pig iron, and of the refined metal produced from it, *showing a great diminution of carbon in the process*. This is the kind of analysis I wanted to see, in reference to the pending dispute, on the effect of *quantity* in producing the varieties of pig-iron. This analysis goes to establish the received notion, that the white iron of the refinery contains *less carbon* than grey iron. Nevertheless, it is not conclusive, for it is not stated whether the refined metal was the bright lamellated crystalline white iron, which is the critical product of the refinery, or that very different substance, the dull steel grained iron, pervaded with honeycombs, which results under the term "high-blown metal," when the refining has been too long continued.

I have noticed some other points in this last paper, but I will avoid remarking on them hastily. I consider we are highly indebted to the persevering attention which Mr. Mitchell, unconnected by interest or contact with the manufacture of iron, has bestowed on the *rationale* of its chemical processes, and this very position gives him some disadvantage. The process of refining by charcoal, or the "hollow fire," as it is termed in this country, is, I conceive, as described, drawn from foreign sources. Has Mr. Mitchell ever subjected to examination the gases contained in the interstices of coke or charcoal?—DAVID MUSHET: *Dec.* 4.

SILICON IN IRON.

Sir,—If Mr. Leighton refers to some of my former papers, he will find that the quantity of silicon in pig-iron is sometimes 4 per cent., much less in finished bar; and he must also bear in mind that a large proportion of silica is derived from the ash of the fuel and the furnace bottom. The amount of silica contained in the cinder, produced during the conversion of pig into bar-iron, is, on the average, 20 per cent.—the remainder being oxide of iron, phosphoric acid, &c. JOHN MITCHELL.

Dec. 10.

ON THE MANUFACTURE OF IRON RAILS.

Sir,—I can assure Mr. Thorneycroft that I truly reciprocate the feelings which he has expressed in his letter of the 8th inst., with regard to our long friendship; and I shall always consider it an honour to possess his esteem and regard. I am glad to find that he repudiates the sentiments and slanders contained in the letters of your anonymous correspondent—"A Staffordshire Ironmaster;" in fact, I expected nothing else from Mr. Thorneycroft, who is personally acquainted with all the gentlemen connected with the Welsh iron trade, and knows them to be above such practices as are attributed to them by this "Staffordshire Ironmaster;" but, with reference to iron rails, I cannot see how I have dealt in "vague and indefinite statements." On the contrary, I have referred only to the latest experiments made for the purpose of ascertaining the quality of iron best suited for the permanent way of railways. The eminence of Mr. Dockray, as an engineer, and his well-known practical experience, are sufficient guarantees for the tests to which he has applied the rails in question; and for myself I would rather take his recent experience than trust to the able pamphlet of Capt. Huish, detailing his opinion upon the wear and tear of rails, which can only be based upon his observations on the first rails which were laid down on the London and North-Western Railway, and which were, no doubt, found too light for the present heavy engine, increased traffic, and higher velocities. Be this as it may, Mr. Thorneycroft wishes to go further from home; and although I had intended to confine my remarks to the facts obtained by experiments made on the London and North-Western Railway, I can refer him to railways abroad for the corroboration of the fact, that *the quality of Welsh iron is the best suited for the permanent way of railways*, however much Staffordshire iron may be preferred for some other purposes. One recent and remarkable instance is this:—About two years ago, the Sardinian Government sent over several engineers to visit the different iron-works in this country, for the purpose of ascertaining which was the best quality of iron for the permanent way of railways. They did so, and had rails manufactured both in Staffordshire and Wales. These rails have been laid down, tested, and tried; and I have the authority of M. Sommelier, the chief engineer, for stating that they have strongly recommended the Government to give the preference to Welsh rails, *even if they had to pay an extra price for them*. I can scarcely ask my worthy old friend to take a journey to Genoa or Turin to satisfy himself of the correctness of this statement; but I do hope he will spare a few hours to go and see the Welsh rails experimented upon by Mr. Dockray, when I feel convinced that his known character for candour will compel him to admit that *Welsh red-short* iron makes rails best suited for the permanent way of railways, and that these Welsh rails can be purchased at from 2*l.* to 5*l.* per ton less than the rails advertised by Mr. Thorneycroft. R. P. DAVIS.

London, Dec. 12.

THE RECENT CATASTROPHE OF THE "LIFE-BOAT."

Sir,—The recent catastrophe of the loss of TWENTY of the crew which manned the *Providence life-boat*, off the mouth of the Tyne, on the coast of Durham, is not only truly melancholy, but an emphatic proof that the so-called "life-boat" is no *life-boat* at all. It appears that a wave struck the *Providence* when alongside the wreck, by which she was upset, and 20 out of 24 which manned the boat were consigned to a watery tomb; while the "life-boat" floated away with HER BOTTOM UPWARDS! Call you this a *life-boat?* For my own part, I should as little dream of being drowned in or from what I consider a life-boat *ought to be* as to be swamped in a drawing-room! Yet, some years ago, the life-boat of Scarborough upset, and never "righted" again, and the crew were drowned; and previous to that catastophe, the "life-boat" of Whitby, if I remember right, sunk among the waves soon after being launched! Many years ago, that of Blyth was dashed to pieces, and the crew drowned on the *first* attempt, after being built, to approach a wreck!

There are two elements which are presumed to enter into a "life-boat," properly so called—floatage, though filled with water, &c., and the power, or property, of immediately "righting again," or recovering its former position. Had the *Providence*, it may be added, been sufficiently supplied with Carte's life buoys, attached to the gunwale, not one of those who perished need have been, humanly speaking, lost; and every life-boat ought to be so furnished. It is quite clear that in the cases I have referred to, the required form and other requisites of a life-boat have been entirely set at nought.

I am disposed to repudiate the employment of *air boxes* in life-boats altogether. The wood rends in summer, and these become, consequently, a "broken reed." I decidedly prefer *compressed cork*, smeared on the surface with pitch, for the lining of the life-boat; and it seems to me that a *belt* externally of the BAMBOO, from its air-tight internodes, its flexibility and strength, and silicious surface (a remarkable combination indeed of strength and flexibility), would be a most substantial and important adjunct. I am decidedly of opinion that a "life-boat" should not be sub-

ject to the contingency of being *upset at all*, even when combined with the power of righting again; and a right application of gutta percha supplies us with the means, happily, of securing our materials air and water-tight. A *life-boat* should be formed of pliant and elastic materials, in case of a rebound, by striking against a rock or its salient angles. In the life-boat I proposed, the centre of gravity, in correspondence with the centre of the oscillation of the wave, is adjusted by lowering or raising, by means of rack-work, what is analogous to a "false keel" loaded; while the gunwale is surrounded by flaps, or fins of cork, of 1 to 2 feet broad, in their ordinary condition, hanging down; but when a waves strikes either side, the cork on the opposite side simultaneously assume the horizontal position, and by the resilience of the wave prevents the life-boat from being capsized.—J. MURRAY: *Portland-place, Hull, Dec.* 13.

ADULTERATION OF BREAD.

SIR,—Although this subject is somewhat foreign to your columns, yet its importance may perhaps induce you to allow me a few lines to reply to Mr. Smith—the spirit of whose letter appears in your "Notices to Correspondents." Mr. Smith states, that even unleavened bread—as biscuits, &c.—if mixed with 1-20th of gypsum, or chalk, would become so hard that it would be impossible to masticate them. In this he is decidedly in error; for I have examined biscuits, &c., in which at least 16 per cent. of chalk has existed; moreover, I have prepared biscuits with 10 per cent. of chalk and 10 per cent. of gypsum respectively; and there is no difference to be perceived during the mastication of either one or the other, in comparison to an unadulterated biscuit made at the same time, excepting that the sample with gypsum gives a peculiar after taste. It is also stated that the bakers would be glad to do without alum. This I rather doubt; for it is well known that very inferior flours can be made into perfectly white and good looking bread by its means. As regards the use of potatoes, they give no unwholesome quality to the bread, but their employment is a direct fraud; for the bread so made takes up very much more water; so, in buying a loaf thus prepared, the purchaser pays for an increased amount of water, which has deplaced flour; thus, unless potatoes be very dear indeed, it is not likely the baker will cease to employ them.

London, Dec. 10. JOHN MITCHELL.

THE DIAMOND.

SIR,—In reply to Mr. I. Baggs's observation respecting Mr. Perkins's method of re-carbonising the surfaces of steel plates, the object here being merely to steelify the superfices of the softened plate, and that only to the extent of soft steel, no alteration would take place in the form of that superfices, the action of the carbon being limited to the production of a soft steel surface, and being, at the same time, perfectly uniform at every point in that surface. But in the case of placing a diamond upon a plane of soft iron, and continuing the cementing temperature until as much of the diamond should have been absorbed as was required, in order to produce a proper *facet*, the surface of the plane at the touching point would become over-carbonised, passing from soft iron into steel and steel-grained iron, involving an expansion of the surface at this point from the new crystalline arrangement of the super-carbonised particles of iron. In fact, before the change to steel-grained iron took place, a blister would, in all probability, rise, as soon as the limit of soft steel was passed.

The filings of farrier's nails (charcoal iron, of course) would have produced steel capable of hardening so as to scratch glass, and, therefore, fit enough for penknives, scissors, &c., if fused in a *small* crucible, in quantities not exceeding from 500 to 100 grs., either with or without pulverised marble, only that in the latter case the resulting button would produce a better quality of steel, less red-short, and capable of hardening to a greater extent. In no instance, as my late father fully proved, has the presence of carbonic acid in the crucible the slightest effect as regards the conversion of soft iron into steel.

A bar of Swedish iron, of the softest kind, about ¼th in. square, was cemented for several hours in a small crucible, placed in a large one, filled with pounded limestone, and which was renewed from time to time as it became caustic. The bar proved softer and more tenacious than when first introduced, nor did it harden when dipped at a full red heat. This bar must have been surrounded by an atmosphere of carbonic acid, and yet none of the carbon had entered into combination with the iron.

Coleford, Dec. 10. ROBERT MUSHET.

THE DIAMOND.

SIR,—My proposed plan for reducing the substance of the diamond, by the absorbing power of a plate of soft iron, is one that admits of a great variety of applications. Dr. Murray, however, is perfectly correct in dealing with the facts of the case as he finds them recorded. He says, with reference to the economy of the process, that "that portion of the diamond expended in the conversion of soft iron into steel would be entirely lost. No doubt [he continues] the cutting and polishing of the diamond is both an expensive and a tedious process; but it must not be forgotten that, while the cutting of the Pitt, or Regent, diamond (from which his illustration is taken) cost 5000*l.*, the diamond dust and chips sold for more than 7000*l.*" This statement is quite correct, and the inference to which it has led is perfectly natural; but I think I shall have no difficulty in convincing the doctor that, so far from there being any necessary waste of diamond dust and chips involved in the proposed process, it may be so conducted as absolutely to become a source of greatly increased gain over the present system of diamond cutting.

To effect this, I propose to employ *an exceedingly thin knife of soft iron*, having a power of motion in its own plane, which is coincident with that of the intended section. As chemical action proceeds, the knife acting with a slight pressure, will gradually cut its way into the stone, until the edge is saturated with carbon. It is then to be removed, the steelified portion ground or filed away, and the act of cementation renewed with a fresh cutting surface of soft iron. By repeating this process a sufficient number of times the diamond will be accurately divided, and the superfluous portion which is removed will not be in chips, but in a single piece, and, therefore, of much greater value. If in the progress of the above operation any obstinate adhesion should be found to occur between the iron and the diamond, it may be easily overcome, as I before stated, by immersing the adhering elements in dilute sulphuric acid. We must not forget, however, that in discussing the possible utility of the proposed process, we are basing our argument upon a circumstance whose truth, though apparently warranted by inductive reasoning, is not absolutely proved. The discussion will, nevertheless, prove of some service, as it has mainly induced the promised experiments of Mr. Mitchell, from whose known accuracy of manipulation we may fairly expect a positive and unequivocal answer to a long disputed and most interesting question.

December 12. ISHAM BAGGS.

PATENT LAW REFORM.

SIR,—I am sure Mr. Mushet need not think it necessary to make any apology for placing his opinions respecting the amendment of the Patent Laws in opposition to mine. As regards some points, I am sure it must be admitted by every unprejudiced person that there was much weight in what he stated, although I could not admit that the practical adoption of the measures he recommended would amend the law so much as he might imagine and we should all desire.

Mr. Mushet concedes to me that, when the capitalist is to be resorted to, it makes but little difference whether 100*l.* or 300*l.* be the price of the patent; but Mr. Mushet thinks that the 100*l.* fee would enable the poor inventor to carry his patent through himself, and then appeal to the capitalist. In answer to this, I can only say that I fear poor inventors are generally *too poor* to take advantage of such a reduction; and, therefore, should this reduction be made, I am disposed to think that, whatever may be the benefit to a few inventors, with moderate means and easily workable inventions, the *poor* inventor will still be left in the lurch.

I am glad to find that Mr. Mushet concedes that the argument in favour of bringing full capital to work out an invention is a sound one; but he says—"Would it not tend, as Mr. Campin puts it, rather to the deduction, that there would be an advantage in every way in *keeping up* a high scale of charges." It certainly may be said to have that tendency, and it is because my judgment is in suspense as to whether the high price of patents should, or should not be kept up, that I have proposed the amendment I before enunciated; for it must be remembered that there is great weight in the two points relied on by the advocates of the high-priced system—viz.: that it checks, to a great extent, the multiplication of patents, and, of course, renders the patent monopoly more valuable when once granted. The dubitation I labour under has, therefore, induced me to propose a measure that, whilst it smooths the way to the inventor, will not throw down these great barriers (if barriers they be), and allow entrance to a Babel of inventions. Indeed, I consider that the plan of permitting interim protection, to be had by all interested for a small sum, will act as a filter, as the useless projects will never get beyond that step, whilst the good inventions will be afterwards protected, and thus will two good effects be had—viz.: the bestowal of a chance upon every inventor, and the protection of the public by the sifting of inventions, repressing the multiplication of useless but obstructive patents.

As regards scientific evidence, I must explain that what I intend is, that several men of eminence in practical science be appointed as official referees, and that before them shall be taken all ordinary and necessary evidence; but no person shall be brought before them to give evidence merely as to his opinion upon the scientific points in the invention, as the necessity for such assistance will be done away with, the official referees being quite competent to report to the court without such extraneous aids. This would reduce the expense of patent trials very considerably.

210, *Strand, Dec.* 6. F. W. CAMPIN.

EXPLOSIONS IN THE EAGLESBUSH COLLIERY, AND STRUVE'S VENTILATOR.

SIR,—In your Journal of the 1st inst., two explosions are stated to have occurred in the Eaglesbush or Eskyn Colliery, near Neath, on Wednesday and Thursday, the 21st and 22d Nov., by which 20 men were severely burden. As it is well known that Struvé's patent ventilator is used in this colliery, some surprise has been felt that such accidents should have happened, and doubts have been entertained of the efficiency of the machine as a means of mine ventilation. The importance of the subject has induced the writer to institute particular inquiries into the causes of both accidents—the result of which is, as will be presently shown, that the accidents are solely attributable to the men, and that the usual consequences of explosions were very materially ameliorated by the use of the machine.

It appears that, owing to some slight repairs being needed in the engine, the machine was not in operation on Wednesday morning as early as was usual; but had been at work about 10 minutes before the men entered the colliery. Both before entering the pit, and after they had descended the slant, or slope, the men were especially cautioned not to go into the stalls in the upper range, until the machine had been at work for five or ten minutes longer, as it was notorious that these stalls were the most fiery in the mine. The headway being clear of fire-damp, a man, named Arthur, presumed to disregard the caution given to him, and went into his stall with a naked light, when an explosion immediately took place, which severly burned him and seven others, destroying four or five air-doors, and doing other damage. Immediate measures were taken to replace the broken doors, and repair the injuries the works had sustained. The men were withdrawn from that part of the mine, and directed to work in a lower headway, where the ventilation was good, and were positively prohibited by Mr. Penrose, the managing owner, from going into the upper level, until the air-course had been restored.

Despite these orders, and after repeated cautions by the overman and fireman, some of the men persisted in going into the stalls with candles on Thursday morning, and the ventilation being very imperfect, in consequence of the broken air-doors not having then been repaired, or replaced, as might have been predicted, another explosion took place, burning 12 men. It, therefore, appears that there was no want of vigilance, or prudent care, in the owners and overmen, or was there any inefficiency in Struvé's machine, but that these lamentable accidents were solely owing to the reckless and highly culpable conduct of some of the men. It is well known that in accidents of this kind the greatest fatality is generally caused by the "after-damp," and it is a matter for congratulation that in two such serious explosions no death occurred from this cause. The timberman who, on the second occasion, was repairing a door at the end of the headway, and was severely burned by the explosion, states that he sensibly felt the air to be changed in a very short time after the "blast" had passed over him, and that he and the other sufferers, after the lapse of two or three minutes, were able to get up, and walk out of the heading in the direction which the explosion had taken. Anticipating the death of some of their fellow-workmen, two of the colliers, with that courageous humanity which peculiarly distinguishes this class of men on such occasions, lost no time in proceeding to the upper range in a different direction from that taken by the sufferers on leaving it, in order to render such assistance as might be required. On arriving there, instead of beholding the dead and dying, they were agreeably surprised to find the heading and stalls deserted, and scarcely a trace of "after-damp" observable. This circumstance speaks volumes in favour of Mr. Struvé's valuable invention, and is a conclusive proof of its superiority to the furnace as a means of mine ventilation. It has now been employed about 10 months at the Eaglesbush Colliery, and it is satisfactory to know that it has realised all the benefits which were anticipated from it. Both the owners and colliers speak of it with increased admiration, and a confidence which has been confirmed and strengthened by experience. Its economy and efficiency has been unequivocally demonstrated, and it is to be regretted that it has not been more generally adopted. J. RICHARDSON, C.E.

Neath, Dec. 11.

SAFETY FUSE.

SIR,—I leave you and your readers to judge whether my letter was of a contemptible character, as intimated by Messrs. Brunton and Co.'s letter of the 4th inst. Was it not apparently written in a spirit of fairness (and such was *really* the case), calling on the parties qualified for discussing the merits of the productions of the respective manufacturers, that the public might be able to determine whose fuse was the most eligible? I said, truly, that I have no connection either with the manufacture, or the manufacturers, of that article; and, therefore, have no more interest in promoting the sale of Messrs. Bickford and Co.'s than I have in that of Messrs. Brunton and Co.'s safety fuse.

I had heard, respecting Messrs. Brunton and Co.'s fuse, the following particulars:—1. That several parcels of their fuse were returned from the mines, on account of its bad quality. Was it not so?—2. That the miners expressed their disapproval of it, and because no better fuse was purchased by the adventurers in certain mines, they (the miners) went privately and purchased elsewhere fuse of a better quality.—3. That certain agents, who were induced to sign the testimonial, after the example of a respectable purser, on finding that the fuse was not so good as they had been given to understand it was, regretted their signature to such testimonial.—4. That, in one mine, Messrs. Brunton and Co.'s 5d. fuse was in use, because the agents were afraid to use the 3d. quality, and because, from mere friendship they are determined to patronise Messrs. Brunton and Co.'s establishment. How far any of these allegations are founded in fact, I am not prepared to say. It is very possible they may be false; and my object in writing my last was not to injure Messrs. Brunton and Co., but to find out how far the said statements were correct. Messrs. Brunton and Co. will not satisfy *my* mind by a reprint of the original testimonials. The testimonials contained in your last are from Mr. Brunton's *circle of friends*, at the head of whom stands Mr. Pike, the purser of the West Cornwall Railway, of which Mr. Brunton is the surveyor. They had better procure testimonials, if possible, from respectable parties at a greater distance from heir own door, that the public may have more confidence in their fuse. I think that the suggestion thrown out by you in your City Article of December 1, is very fair, and one to which the managers of our mines should pay regard—viz.: to allow the miners the opportunity of selecting from the different manufacturers' fuse, that which most pleases them. To afford the miners this choice, all the sorts should be kept at the store-room on the mine; at present the miners have no alternative but to purchase the *one* sort kept at each mine. As the men *pay* for the article, they should have the privilege of choice. As to Messrs. Brunton and Co.'s "contempt" of my last letter, I regard it with the same indifference as I do the descent of a feather!—* *: *Dec.* 13.

IMPROVEMENTS IN BLASTING.

SIR,—Permit me respectfully to tender my thanks for the kind manner in which you have noticed my cartridges in your Journal, and to assure you the statement is perfectly correct. My attention to the construction of a cartridge, to guarantee safety to the miner, or quarryman, was first directed in consequence of the many poor men we find daily in the streets, both blind and maimed—the cause, without inquiry, being too well told from the stains of gunpowder on the faces, hands, &c., as well as the number we find recorded in the papers killed. In giving security against premature explosions, which has given confidence to the workmen in several places, the cartridges are so protected, that an ounce of gunpowder fired over the top of them will not ignite the charge; therefore, I presume a spark from the tamping bar cannot. It is a well-known fact, although not acknowledged by many parties, that the greater part of the accidents arise from loading the holes with loose gunpowder, which is simply accounted for by the rock being jagged by the borer, or jumper, in addition to the natural crevices in the stone, which hold grains of the powder. In tamping, the bar, striking against the spar, ignite these grains, and carry the fire too often to the main charge—sending the unfortunate miner, or quarryman, into eternity without a moment's notice, or injuring him for the remainder of his life. Other accidents arise from an imperfect fuze. I have found some very defective species, of from 2 to 5 in., being without a particle of powder in the tube—consequently, the fire for a time is disconnected; and when a misfire is believed to be ascertained, the men venture to the rock, and very frequently get blown up, even an hour or more after the fuze is first-fired. This is clearly proved—the hemp, &c., burning slowly, similar to a slow match, till the fire reaches the perfect part of the fuze, which, of course, fires the charge. In connection with my cartridge, I use a fuze that has for a long time been considered the best and most safe; and will do so, without regard to cost, till I find a better. It has been publicly stated that my cartridges are not applicable to mines, from the cramped positions of the miner in the levels, winzes, &c. I cannot imagine how the writer can give an opinion—his never having heard of or seen them, according to his own confessions. If these positions are his only reasons, he can know but little of mining—it being evident that, if so cramped, it is much more easy to insert into the hole a perfect charge in one operation than to go through two or three—first, in cleaning or drying out the hole; second, pouring in the powder through a funnel or horn; and, thirdly, to place in the fuze. My method wants none of these, time and labour being saved; the cartridges being waterproof, require only to be inserted, tamped, and fired. A miner can carry in his pockets as many cartridges as he may want for the day, of sizes suited to his work, of which he will be the best judge—they being manufactured from 1 to 5 in. in diameter, or greater, if required, and of different weights, with a sufficient length of fuze always fixed. Prejudices are strong things; but facts more stubborn. If any one is at all doubtful, he has only to apply, and I will send, without cost, a few for trial, so that he may judge practically.—G. A. COPELAND: *Pendennis, Dec.* 4.

MINING INVESTMENTS—HOME AND FOREIGN.

SIR,—Your correspondent, "Anglo-Celt," seems to infer that I have taken up the cudgels for the foreign mines, especially the Alten, because that I am interested in them. I beg to assure you that I do not possess a single share in any foreign undertaking. What little capital I might possess, I should certainly prefer investing at home in speculations the management of which I could in some measure investigate, than in foreign mines, where I should have solely to depend on the report of the agents intrusted with their management. The sweeping condemnation of "Anglo-Celt" alone induced me to come forward with a statement of facts of which I had a personal knowledge. From the inaccurate information of that one mine, I am led to believe he is equally as erroneous with the remarks he has been pleased to put forward on the others. With regard to his statement of Ireland, he confesses he has resided there but as a partisan. Knowing how the majority of the evils of Ireland may be traced to that bitter party spirit which unfortunately prevails amongst all classes in that unhappy country, any statements he puts forward are naturally prejudiced, and must be cautiously received. Avoiding all political allusions (to enter upon which would trangress the strict rules on which your able Journal is conducted), the evils of Ireland are to be traced in all classes of her people, from the landlord to the peasant—slovenliness, untidiness, and sloth being their great characteristic feature, and no self-dependence or reliance on their own exertions. In 1846, the Government found the Irish workmen preferred the labour test to the culture of the fields.

A popular writer has well delineated the difference of character between the English and the Irish labourer. He says—"The English workman cursed there straints, the sordidness, the degradation of parish pay, and left it when he could, with those feelings of scorn and hatred which it was the Legislature's policy to cultivate towards it. But the Celt adopted the public works as a provision for life, which, though poor, exempted him from the vicissitudes of voluntary labour, and promised to be uniform and secure. The labour offered by a relief board, instead of being unpopular, was coveted, the workmen appearing to consider that it invested them with some of the pomp and circumstance of *public officers*." I should be glad to see the condition of Ireland ameliorated, but the first steps must be taken by her own children. Capital has never been fully employed in Ireland, because she has been wanting in industry, perseverance, economy, and internal security. Whenever it has been, unfortunately, embarked there, it has been rendered either unproductive by the sloth, or unsafe by the lawlessness of the people. Capital does not grow voluntarily, nor can it forcibly be transplanted. We may enter into discussions, and propose panaceas for the regeneration of Ireland, but they will be found futile until the monster evil is removed—her own indolence and ignorance combined, as it always is with a fierce, dissatisfied, and turbulent spirit.—A LOVER OF FAIR PLAY: *Dec.* 10

PEAT CHARCOAL.

SIR,—Your correspondent, Dr. Murray, in his communication in last week's Journal respecting peat charcoal, seems to believe that I have set it forth as a "disinfectant;" no doubt unintentionally. I believe it is not yet known what is or is *not* a "disinfectant." I only *humbly* approach the evils which all admit—viz.: the ammoniacal sulphuretted hydrogen, and other gases, from which we now suffer. I seek to *kill* them by means of peat charcoal, and, happily, have succeeded. Whether I *disinfect* by the operations, subsequent facts will, perhaps, prove. The following extract from the report of Dr. Ulick Burke, medical inspector of the Poor Law Union of Mayo, will give an opportunity for judgment; still I believe no one can yet say what is *bonâ fide* "disinfection." But if by the use of *peat charcoal* to *deodorise* excretory matter, and prevent the escape of noxious gases, the loss of life is prevented in the proportion hereafter stated, I shall be quite satisfied.

It is right, however, I should say your correspondent is in error, with many others, as to the "*indistructibility*" of charcoal. Several charcoals are *indistructible*, but several are not. For instance, peat charcoal, prepared as a fertiliser, and deodorized, yields, by degrees, its *whole* substance to the soil, or more properly to the plant, in four or five years. In the interim it acts as an absorbent of those gases which give nutriment to vegetables; and, at the same time, receives and holds, until drawn from it by the soil, or rootlet, an abundant supply of moisture. It is now beyond a question that there is no more perfect *deodorizer* than *peat charcoal*. For other charcoals I claim no such properties. JASPER B. ROGERS.

St. James's-street, Dec. 14.

Extract from Report of Doctor Ulick Burke to the Poor-Law Commissioners of Ireland.

But the effects on the health of the inmates was far more satisfactory. I find that the numbers registered during the half-year ending 25th March were 353. Of these, 132, or 26 11-13ths, died during that period. In the half-year ending 29th Sept. last, the numbers gave a mortality of 1 in 62 23-24ths, and of these 23 died between the 25th March and 4th May—a period of little more than five weeks—before the peat charcoal was employed; while, during the last four weeks in which I had the temporary charge of the infirmary and fever hospital, *but three deaths have occurred*. . . . I am not assuming too much in attributing it to the healthy state in which the atmosphere is maintained [by means of the charcoal]. . . . It must also be recollected that the latter was the period during which cholera was so prevalent; and, though some rapidly fatal cases occurred in the town and neighbourhood, *not* a single case presented itself in the workhouse, where it was likely, and most dreaded, to prevail.

THE ENGINE AT THE GUADALCANAL MINES, SPAIN.

SIR,—Your paper of the 10th instant, received last post, contains an advertisement, headed "Sims's Combined Cylinder Pumping-Engine at the Guadalcanal Mines." I beg to say, the only engine we have here is a 30-inch single cylinder-engine, made by Messrs. Harvey and Co., of Hayle, from drawings of Mr. Rowe, engineer of St. Just. DUNCAN SHAW.

Mieres, Spain, Nov. 26.

MANCHESTER, SHEFFIELD, AND LINCOLNSHIRE RAILWAY.—During the past week this company have successfully launched, broadside, and deposited at the end of their pier in the Humber, opposite Hull, the great pontoon of iron plates, 400 feet long, forming a landing place, by means of descending platforms from the pier, on to which out of the railway carriages alongside passengers will embark in the steam-boats that are to ferry them in a few minutes across with the least possible detention. The fabric is 50 feet wide, 8 feet deep, weighs 700 tons and was towed to its destination by six steamers.

VALE OF NEATH.—We are happy to hear that the directors of this railway have decided upon pushing their line with all speed to Aberdare—a measure which, by putting it in immediate communication with the Taff Vale Railway and the Aberdare Canal, will not only prove a great convenience to the whole eastern end of the county, but very advantageous to the coal proprietors throughout the important and flourishing Vale of Aberdare. We hear also that in the meantime the works at the Merthyr tunnel will be steadily proceeded with, but with somewhat greater deliberation, so as not to press too heavily on the resources of the shareholders. It is expected that the line will be open to Aberdare by January, 1851, at the latest, and to Merthyr during the following year.

STEAM TO INDIA AND CHINA, VIA EGYPT.—Regular MONTHLY MAIL (steam conveyance) for PASSENGERS and LIGHT GOODS to CEYLON, MADRAS, CALCUTTA, PENANG, SINGAPORE, and HONG-KONG.

THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY

BOOK PASSENGERS and RECEIVE GOODS and PARCELS for the ABOVE PORTS by their steamers—starting from Southampton on the 20th of every month; and from Suez on or about the 10th of the month.

BOMBAY.—Passengers for Bombay can proceed by this company's steamers of the 29th of the month, to Malta, thence to Alexandria by her Majesty's steamers, and from Suez by the Honourable East India Company's steamers.

MEDITERRANEAN.—MALTA—On the 20th and 29th of every month. CONSTANTINOPLE—On the 29th of the month. ALEXANDRIA—On the 20th of the month.

SPAIN AND PORTUGAL.—Vigo, Oporto, Lisbon, Cadiz, and Gibraltar, on the 7th 17th, and 27th of the month.

For plans of the vessels, rates of passage-money, and to secure passages and ship cargo, apply at the company's offices, No. 122, Leadenhall-street, London; and 37, High-street, Southampton.

INSURANCE AGAINST RAILWAY ACCIDENTS BY THE RAILWAY PASSENGERS' ASSURANCE COMPANY.

Empowered by Act of Parliament, 12 & 13 Vic., cap. 40.

The SINGLE JOURNEY TICKETS of the company are now ISSUED at the BOOKING OFFICES of most of the RAILWAYS in the KINGDOM. These Tickets insure the following amounts in cases of Fatal Accident during the journey—irrespective of distance; and proportionate compensation for Personal Injury within the limit of the sum payable in case of Death—*viz.*:

£1000 if a first-class passenger, at a premium of	3*d.*
£ 500 if a second-class " "	2*d.*
£ 200 if a third-class " "	1*d.*

PERIODICAL TICKETS are OBTAINABLE at the COMPANY'S OFFICES, No. 3, OLD BROAD-STREET, LONDON, or of the Provincial Agents of the Company; and the Booking Clerks at all Railway Stations where Single Journey Tickets are issued, upon the following terms:—

For 3 months, at a premium of	10*s.*	With the option of travelling in any class carriage on any railway in the kingdom.
For 6 " " "	16*s.*	
For 12 " " "	20*s.*	

To insure £1000, in the event of a Fatal Accident, and COMPENSATION IN CASES OF PERSONAL INJURY, according to the extent thereof, and in proportion to the sum assured.

Railway Passengers' Assurance Offices, 3, Old Broad-street, London.

LOANS ON DEBENTURES.—The CALEDONIAN RAILWAY COMPANY are prepared to RECEIVE TENDERS OF LOANS, in sums not less than £500.—Applications to be made or addressed to this office.

By order,
D. RANKINE, Treasurer.

125, George-street, Edinburgh, Dec. 1, 1849.

ASSAYING AND ANALYSIS.—ASSAYS and ANALYSES of MINERALS, METALS, SOILS, FURNACE, and all other MANUFACTURING PRODUCTS. INVENTORS and INTENDING PATENTEES assisted in PERFECTING any INVENTION involving an intimate knowledge of chemistry.

INSTRUCTION in all branches of ASSAYING, ANALYSIS, and METALLURGICAL and MANUFACTURING CHEMISTRY.

Communications to be addressed to Mr. Mitchell, 23, Hawley-road, Kentish Town.

INDURATED AND IMPERVIOUS STONE, CHALK, &c.—AGENTS, with capital, are WANTED in all TOWNS to SUPPLY (under British and Foreign Patents) the great demand for HUTCHISONISED MATERIALS—hard as granite, impervious to moisture, vermin, &c.; the cheapest and most durable for all buildings, hydraulic, paving, monumental and decorative work.—The profits are large.

Apply to HUTCHISON & CO.,
140, Strand, London; or Tunbridge Wells, Kent, and Caen, Normandy, stating name, address, and capital at command.

N.B.—Houses cured of damp. The produce of soft stone quarries, chalk, plaster of Paris, wood, pasteboard, and all absorbent materials indurated to resist frost, vermin, &c. *LICENCES GRANTED.*

PATENT IMPROVEMENTS IN CHRONOMETERS, WATCHES AND CLOCKS.

E. J. DENT, 82, Strand; 33, Cockspur-street; 34, Royal Exchange (clock tower area), Watch and Clock Maker, BY APPOINTMENT, to the Queen and his Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometers, watches, and clocks, is secured by three separate patents, respectively granted in 1836, 1840, 1842. Silver lever watches, jewelled in four holes, 6 gs. each; in gold cases, from £8 to £10 extra. Gold horizontal watches, with gold dials, from 8 gs. to 12 gs. each.

DENT'S PATENT DIPLIEDOSCOPE,
or Meridian Instrument, is now ready for delivery.—Pamphlets containing a description and directions for its use 1s. each, but to customers gratis.

MEETINGS OF PUBLIC COMPANIES DURING THE WEEK.

THIS DAY ..... Guadalcanal Silver Mining Association—offices, at One.
National Provident Institution—offices, at Eleven.
MONDAY ..... London and Blackwall Railway—London Tavern, at Twelve.
TUESDAY ..... Licensed Victuallers' and General Assurance Co.—London Tavern, Two.
WEDNESDAY .. Puget's Sound Agricultural Company—Hudson's Bay House, at Two.
Guardian Fire and Life Assurance Company—offices, at One.
South Wales Railway—Paddington Station, at One.
THURSDAY .... Bank of Australasia—offices, at One.
Great Central Gas Consumers' Company—London Tavern, at Seven.

[The meetings of Mining Companies are inserted among the Mining Intelligence.]

RAILWAY TRAFFIC RETURNS.

Names of Railways.	*Length.* 1849	1848	Present actual cost.	Price p. share	Div. 1848	*Traffic Returns,* 1849	1848
Aberdeen	57	16	1,000,547	12½	—	£ 741	£460
Belfast and Ballymena	37½	37½	514,968	18½	5*	390	341
Birkenhead, Lancashire, & Chesh.	19	15	1,088,804	37	5†	729	665
Bolton, Blackburn, & West Yorksh.	14	—	786,384	6	—	413	375
Bristol and Exeter	85½	75½	2,660,490	54	—	3395	—
Caledonian	160	141	5,149,320	11½	3	5882	3530
Chester and Holyhead	94½	59½	3,358,217	10½	4	1293	1040
Dublin and Drogheda	35½	35½	778,565	20½	—	603	603
Dublin and Kingstown	7½	7½	395,915	—	—	588	669
Dundee, Perth, & Aberdeen Junc.	47½	47½	544,554	13½	6½	920	969
East Anglian (Lynn to Ely)	91½	55½	1,247,446	1½	—	547	608
East Lancashire	75½	24	2,628,519	11½	5	—	1462
Eastern Counties and Norfolk	322	295	12,027,069	7½ 7½	—	14176	13857
Eastern Union	78	50½	1,782,703	13	—	1302	1180
Edinburgh and Glasgow	57½	52½	2,923,199	29½	6	2870	2847
Edinburgh and Northern	78	34	2,241,276	10½	2	2064	1630
Glasgow, Paisley, and Ayr	102½	74	2,574,330	47	3	2690	2407
Glasgow, Paisley, & Greenock	23	23	852,846	14½	2	929	838
Gt. Northern & East Lincolnshire	143	—	5,138,756	7½ 7½	5†	2566	—
Gt. Southern & Western, Ireland	188½	110½	3,552,589	32 31½	6†	3490	2872
Great Western	230½	206½	11,867,042	58	6½	13262	17101
Lancaster and Carlisle	90	70	1,476,102	49½	4½	2757	1757
Lancashire and Yorkshire	220	127½	10,063,862	50½	5½	11485	9547
Liverpool, Crosby, & Southport	13	—	84,455	3½	—	71	59
London and North Western	478	428	26,251,635	112½	7	36605	36012
London and Blackwall	5½	4	1,299,675	3½	1-12	568	527
London, Brighton, & South Coast	170	162½	6,502,600	80½	2½	7506	7105
London and South-Western	221	194	7,874,259	31½	5½	7175	7583
Londonderry and Enniskillen	14½	14½	185,739	16	—	122	108
Manchester, Sheffield, & Lincolnsh.	157½	94½	6,598,260	19½	5	4428	2436
Midland Company	483	423½	15,133,779	48	5½†	19065	19645
Midland Great Western (Irish)	50	36½	725,332	25	4†	1030	1074
Monklands	36	—	486,245	—	6	—	—
North British	122	83	3,649,055	11	4½	2903	2264
Scottish Central	45½	—	1,364,228	15	7	1069	844
Shrewsbury and Chester	48	23	969,618	13	5	1322	1213
Shropshire Union	30	—	——	3½	—	335	—
South Devon	57½	29	1,909,232	5	5	1285	1001
South-Eastern	189½	165½	8,666,007	19	5½	7681	6788
Taff Vale	38	40	879,110	—	7½	1609	1519
Ulster	36	36	723,829	45½	—	712	787
Waterford and Limerick	25	—	512,894	—	—	—	—
West Cornwall	13	—	——	—	—	206	193
Whitehaven Junction	12	12	150,879	9½	3	208	170
York, Newcastle, & Berwick	290½	242½	6,827,849	18	7	11015	13734
York and North Midland	260	234	4,983,618	17	7	5843	1725

COAL MARKET, LONDON.

PRICE OF COALS PER TON AT THE CLOSE OF THE MARKET.

MONDAY.—Bate's West Hartley 16 6—Chester Main 16 9—East Adair's Main 14 3—Holywell 17—West Wylam 15 6—Wall's-End Burraton Killingworth 18—Harton 17 9—Hilda 17 6—Lambton Primrose 18 3—Braddyll 19—Hetton 19 3—Haswell 19 3—Lambton 19—Stewart's 19 6—Whitwell 18—Kelloe 18 9—South Hartlepool 18 3—Whitworth 15 6—Adelaide Tees 18 6—Cowndon Tees 18—Tees 19—West Cornforth 18—Anthracite 25—Aberaman Steam 22—Birchgrove Graigola Handpicked 19 6—Nixon's Merthyr and Cardiff 21 6—Original Gibson 18 3.—Ships at market, 45; sold, 34.

WEDNESDAY.—Bate's West Hartley 15 9—Baddle's West Hartley 16—Carr's Hartley 16—Chester Main 16 6—Holywell 17 and 17 3—North Percy Hartley 15 9—Ord's Redheugh 15 6—Ravensworth West Hartley 15 9—Tanfield Moor Bute's 14 9—Townley 16—West Hartley 16 9—Wylam 17—Windsor's Pontop 14 9—Wall's-End Acorn Close 18 6—Bewicke and Co. 18 6—Elm Park 18 3—Gosforth 18—Hedley 18—Harton 18—Hilda 17 6—Morrison 18 6—Northumberland 17 3—Riddell 17 9—Washington 18—Walker 18 Wharncliffe 18 3—Eden Main 18 6—Lambton Primrose 18 6—Bell 18 6—Belmont 18 6—Braddyll 19—Hetton 19 3—Haswell 19 6—Heselden 17 9—Jonassohns 17 6—Lambton 19—North Hetton Lyons 18 6—Russel's Hetton 19 and 19 3—Stewart's 19 6—Denison 17 9—Heugh Hall 18—Hartlepool 19 3—Kelloe 18 9—South Kelloe 18—South Hartlepool 18 6—West Hetton 18—Whitworth 15 6—Adelaide Tees 18 9—Seymour Tees 17 9—South Durham 18—St. Helen's Tees 17 6—Tees 19 3—Birchgrove Graigola Handpicked 19 6—Cowpen Hartley 16—Nixon's Merthyr and Cardiff 21 3—Snapethorpe 17 6—Sidney's Hartley 16.—Ships at market, 145; sold, 127.

FRIDAY.—Bate's West Hartley 16—Baddle's West Hartley 16 6—Carr's Hartley 16—Chester Main 16 6—Holywell 17, 17 3—North Percy Hartley 16—Ord's Redheugh 15 6—Ravensworth West Hartley 16—West Hartley 16 9—Windsor's Pontop 15—Wall's-End Hilda 17 6—Washington 18—Lambton Primrose 18 6—Belmont 18 6—Hetton 19 3—Haswell 19 6—Lambton 19—Russell's Hetton 19—Stewart's 19 3—Caradoc 18 9—West Hetton 17 9—Whitworth 15 6—Adelaide Tees 18 9—St. Helen's Tees 17 6—Tees 19 3—Cowpen Hartley 16—Nixon's Merthyr and Cardiff 21—Whitworth Coke 21—Ships, 43; sold, 36.

BRITISH MINING INTERESTS.

TESTIMONIAL TO Mr. J. B. SHARP, OF LONDON.

Some Gentlemen, who are fully aware of the heavy losses sustained, and the expenses incurred by Mr. Sharp, in his opposition to the "COPPER AND LEAD DUTIES" BILL," for the removal of the protecting Duties upon those Metals and their Ores, during the entire Session of 1848, have resolved on making this APPEAL to all classes interested in those questions, to mark their sense of Mr. Sharp's able, assiduous, and persevering efforts for the protection of British Mining Industry.

From the 18th February, when Lord John Russell first announced the intention of Government to remove that protection from our mineral products, down to the 5th September, the very last day of the Session—when the Royal Assent was given to the Bill by the Queen in person—it is within the knowledge of the parties making this statement, that Mr. Sharp laboured without cessation; for the first two months of that period, in preparing information and papers for Members; and documentary evidence to be brought before the Select Committee determined to be asked for; and, upon the refusal of Ministers, on the 17th of April, to grant a Committee of Inquiry, then, in organising the most strenuous opposition, in both Houses of Parliament, to the progress of the Bill in every stage.

It is, also, within their knowledge, that the documents and information which Mr. Sharp drew up, collected at home and abroad, and combined for those various purposes, are so voluminous, as almost to suggest the belief, that it was beyond the power of any single individual to accomplish so heavy a task; and which, they are persuaded, could only have been accomplished by the most unremitting attention.

Without—as the Gentlemen making this statement quite understand and believe—without the slightest personal or pecuniary interest in any mine or mining property in existence, but on public grounds alone, did Mr. Sharp devote all his time and his energies, in the indefatigable manner which they have described, to serve the interest of the British Miner; sacrificing every other object to that cause. The consequence was, as they are also perfectly convinced, that, between the losses which he sustained, and the expenses which he incurred, in carrying on his measures during a period of nearly seven months—every shilling of which expenses (in London) was defrayed from his own funds—he was a *direct loser* to the full extent of *one thousand pounds*, and collaterally and prospectively of much larger amounts.

Mr. Sharp's assent to this Appeal being publicly announced, has been, with difficulty, obtained by the Gentlemen who have thus interested themselves in the matter. They do not feel themselves of sufficient importance, in the scale of society, to put their names prominently forward; but they consider facts of much more importance than names; and they are quite impressed with the belief, that very few in the Mining Districts, or otherwise interested in the subject, have been at all aware, even of the name of the party who thus laboured so long and so earnestly for their protection. Those exertions, however, all the County and Borough Members of the Western Counties, besides numerous others, Peers and Members, who supported the cause in both Houses of Parliament, they are satisfied will, if referred to, most readily and distinctly admit.

They cannot doubt, therefore, that when the extraordinary and unflinching efforts which Mr. Sharp made, for so long a period, the large losses which he sustained in consequence, and the heavy expenses that he incurred, are known to the several classes connected with the mineral properties of the country, this, their plain and unpretending appeal, will be promptly responded to, by those interested coming forward to confer upon him such a Testimonial, as shall, upon the simplest principles of justice, remunerate him, at the least, for the direct sacrifices which he thus made on their behalf. And they can only attribute to the want of a more extensive knowledge of those exertions, and of the party who made them, the fact that, within the fourteen months which have elapsed since the close of his labours in Parliament, he has not received, altogether, an amount equal to the sums which he actually disbursed, nearly a year and a half ago, in the prosecution of those labours.

Amounts already subscribed in Cornwall.

The Right Honourable the Earl of Falmouth	£ 25	0	0
The Right Honourable Lady Basset	10	0	0
Sir Charles Lemon, Bart., M.P.	10	0	0
E. W. W. Pendarves, Esq., M.P.	10	0	0
W. H. Pole Carew, Esq., M.P.	10	0	0
T. J. A. Robartes, Esq., M.P.	10	0	0
Joseph Thomas Treffry, Esq.	100	0	0
The Reverend Canon Rogers	10	0	0
John Hearle Tremayne, Esq.	5	0	0

Contributions may be made at the undermentioned Bankers, who have kindly consented to receive the same—namely:

In London	Messrs. Barclay, Bevan, and Co., Lombard-street. Messrs. Williams, Deacon, and Co., Birchin-lane. Messrs. Praeds, Fane, and Co., Fleet-street. Messrs. Ransom and Co., Pall Mall East.
Liskeard, Launceston, Bodmin, St. Austell	Messrs. Robins, Foster, and Co. The Devon and Cornwall Banking Company.
Redruth	Messrs. Tweedy, Williams, and Co.
Camborne	Messrs. Willyams and Hodge.
Helston	
St. Columb	
Truro	Messrs. Tweedy, Williams, and Co. Messrs. Willyams and Co.
Falmouth	Messrs. Tweedy, Williams, and Co.
Penzance	Messrs. Bolithos, Sons, and Co.
St. Ives	Messrs. Bolithos, Sons, and Co.
Plymouth, Devonport, Exeter, Tavistock, Columpton, Kingsbridge, Newton Abbot, Totnes	The Devon and Cornwall Banking Company.

Communications may be addressed to the *Honorary Secretary*, Mr. ROBERT NEALE, 4, Red Lion-square, Bloomsbury, London.

[A list of the subscriptions received since issuing the above address, will be published in next week's Journal.]

SEA, FIRE, LIFE ASSURANCE OFFICE,
CONNECTING THE MINING INTERESTS OF ENGLAND AND WALES.
(ESTABLISHED BY ACT OF PARLIAMENT.)
31, *CORNHILL, LONDON.*

Capital £100,000, in shares of 20s. each, to be paid in full on allotment, bearing a guaranteed interest of 5 per cent. in perpetuity (irrespective of further dividends) upon the paid-up capital.

Application for shares to be addressed to the Directors, at the offices of the Society.

Marine, fire, and life assurances granted on the most liberal terms.

Immediate and deferred annuities granted on terms especially advantageous for investment of capital. By order, AUG. COLLINGRIDGE, Managing Director.

SPECIMENS OF THE RATES OF PREMIUM FOR ASSURANCE OF £100.

Age.	*With Profits.*	*Age.*	*Without Profits.*
20	£1 19 3	20	£1 14 6
30	2 11 3	30	2 5 1
40	3 8 3	40	3 0 2

The whole of the Profits from the Life Department divided amongst the Policy holders. All Life Policies indisputable.—All Life Policies free of stamp duty.

ALFRED BURT, Actuary.

*** WANTED, AGENTS and MEDICAL REFEREES for the PRINCIPAL TOWNS in the KINGDOM.
COUNTY SURVEYORS ALSO REQUIRED.

AGENTS WANTED IN DEVON, CORNWALL, AND NORTH AND SOUTH WALES.

SCOTTISH AMICABLE MUTUAL LIFE ASSURANCE SOCIETY.—ESTABLISHED 1826.
LONDON OFFICES—No. 43, LOMBARD-STREET.

PRESIDENT.
THE MOST NOBLE THE MARQUIS OF DALHOUSIE.
VICE-PRESIDENTS.
HIS GRACE THE DUKE OF BUCCLEUCH.
JOHN CAMPBELL COLQUHOUN, Esq., OF KILLERMONT.

A Policy of £1000, opened with this Society in 1840, was, in 1846, by the addition of £2 per annum on every £100, increased to £1120. And, by the above principle of this Society, an addition of 2 per cent. per annum, upon the above accumulated sum of £1120, gives, as the value of the original policy of £1000,

In 1849, if it then becomes a claim	£1187	4	0
1850 " "	1209	12	0
1851 " "	1232	0	0
1852 " "	1254	8	0

TABLE—*Illustrating Accumulation of Additions on £1000 Policy on Society's Plan:*—

Amount with Additions. At end of Years.	At 2 per cent. per ann.	Sum of Premiums paid according to Ages at entry. 20.	27.	34.	41.
6	£1120 0 0	£145 5 0	£167 8 4	£196 5 10	£235 19 2
13	1276 16 0	290 10 0	334 16 8	392 11 8	471 18 4
27	1659 6 7	581 0 0	669 13 4	785 3 4	943 16 8
55	2802 10 10	1162 0 0	——	——	——

New entrants admitted to every advantage.
Immediate, deferred, and survivorship annuities granted.
Every facility afforded to assurers.

THE WHOLE PROFITS DIVIDED AMONG THE ASSURED.

Manager—WILLIAM SPENS.
Resident Secretary in London—J. E. C. KOCH

SEWERAGE OF LONDON.—The ATTENTION of the COMMISSIONERS appointed to determine upon the MOST EFFICIENT MATERIAL for the CONSTRUCTION of the SEWERS OF LONDON, is particularly directed to the ASPHALTE OF SEYSSEL, which more than any other material is applicable to the CONSTRUCTING and INTERNAL COATING of BRICK CULVERTS and OTHER CHANNELS for DRAINAGE.

The experiments made by the Royal Artillery on the embrasures of Plymouth Citadel, constructed of Seyssel Asphalte Brickwork, under the orders of the Hon. Board of Ordnance, have fully proved the superiority, adhesiveness, and strength of Seyssel Asphalte over all other cementitious compositions. A printed account of these experiments can be had on application to I. FARRELL, Secretary,

Seyssel Alphalte Company—"Claridge's Patent"—Established 1838.

Note.—The application of the Asphalte of Seyssel is specially recommended by the Commissioners on the Fine Arts for covering the ground line of brickwork in marshy situations, and it has been suggested that it would be peculiarly applicable for covering the *areas* of closed *grave yards*, and for the construction of *catacombs*.

OILS.—BROTHERTON & CO. beg to call the attention of all parties EMPLOYING STEAM POWER to their PATENT PURIFIED OILS, for the economical working of STEAM ENGINES and MACHINERY and BURNING IN LAMPS. The adoption of its use effects a saving of 25 per cent. over any other oil, and its properties are such as to greatly preserve machinery bearings.

BROTHERTON & CO.,
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IMPROVED LIFTING JACKS,

MANUFACTURED BY
W. AND J. GALLOWAY,
PATENT RIVET WORKS,
MANCHESTER.

IMPROVED RATCHET JACK. HALEY'S PATENT LIFTING JACK.

*** The attention of parties who employ
Lifting Jacks,
is respectfully requested to the superiority of those annexed, over those hitherto in use.

CHOLERA AND BOWEL COMPLAINTS.—Thousands have been saved by Dr. MACANN'S GRAND ELIXIR and TINCTURE. It was successfully prescribed by the late Dr. Macann, when the cholera raged at Bilston, in 1832, and has effected more cures in 1849 than all other medicines. One dose is generally sufficient to stop vomiting, purging, cramp, &c., and every family should have a supply in the house ready. The Grand Elixir is sold in bottles, 2s. 9d. and 11s. each, and the Tincture in bottles, 13½d. each, duty included.—Prepared only by THOMAS WHITE, chemist, Bilston, and sold by him, and by Barclay and Sons, 95, Farringdon-street; Drew, Heyward, and Barron, Bush-lane, Cannon-street; Hannay and Dietrichsen, 63, Oxford-street, London.—Wholesale and shipping agent, Mr. Wm. Bailey, Wolverhampton.—Beware of counterfeit preparations, and see that the Government stamp on each bottle has the signature of "T. WHITE," as none else is genuine.

ASTHMA.—ANOTHER CURE OF THIRTY-NINE YEARS' ASTHMA, by Dr. LOCOCK'S PULMONIC WAFERS.—Dated No. 17, Church-lane, Hull.—SIR: I have suffered more than I can describe from the effects of an asthma, which has for years rendered my days irksome and my nights sleepless. It was brought on by cold, while accompanying the retreat of Sir John Moore. I have had the ablest advice, but nothing has given me one-tenth part of the benefit which your Dr. Locock's Wafers have, &c. (Signed) WALTER ERRINGTON, late Grenadier Guards.—Dr. Locock's Wafers give instant relief, and a rapid cure of asthma, coughs, and all disorders of the breath and lungs.—To singers and public speakers they are invaluable, for clearing and strengthening the voice: they have a most pleasant taste.—Price 1s. 1½d., 2s. 9d., and 11s. per box.—Agents: Da Silva & Co., 1, Bride-lane, Fleet-street, London; sold by all medicine vendors, of whom also may be had, Dr. LOCOCK'S FEMALE WAFERS, the only medicine recommended to be taken by ladies. Have no taste of medicine.—Beware of imitations.

ON NERVOUS DEBILITY AND GENERATIVE DISEASES.

Just published, the fortieth thousand, an improved edition, revised and corrected, 120 pages, price 2s., in a sealed envelope, or forwarded, post-paid, by the Author, to any address, secure from observation, for 2s. 6d., in postage stamps, illustrated with numerous anatomical coloured engravings, &c.

MANHOOD: the CAUSES of its PREMATURE DECLINE, with plain directions for its perfect restoration. A Medical Essay on those diseases of the Generative Organs, emanating from solitary and sedentary habits, indiscriminate excesses, the effects of climate, and infection, &c., addressed to the sufferer in youth, manhood, and old age; with practical remarks on marriage, the treatment and cure of nervous and mental debility, impotency, syphilis, and other urino-genital diseases, by which even the most shattered constitution may be restored, and reach the full period of life allotted to man. The whole illustrated with numerous anatomical engravings on steel, in colour, explaining the various functions, secretions, and structures of the reproductive organs in health and disease; with instructions for private correspondence, cases, &c.—By J. L. CURTIS, consulting surgeon, 15, Albermarle-street, Piccadilly, London.

REVIEWS OF THE WORK.

We feel no hesitation in saying, that there is no member of society by whom the book will not be found useful—whether such person hold the relation of a parent, preceptor, or a clergyman.—*Sun*, Evening Paper.

J. L. Curtis, *On Manhood, and the Causes of its Premature Decline; with Plain Directions for its Perfect Restoration.*—[Strange, Paternoster-row.]—This is a book replete with valuable advice and information. It developes the fearful shoals on which a large proportion of human happiness is wrecked, and furnishes a chart by which they may be avoided and escaped. Fortunate for a country would it be, did its youth put into practice the philanthropic and scientific maxims here laid down. One cause of matrimonial misery might then be banished from our land, and the race of the enervate be succeeded by a renewal of the hardy vigorous spirits of the olden time.—*United Kingdom Magazine.*

Manhood: by J. L. Curtis and Co.—Their long experience and reputation in the treatment of these painful diseases is the patient's guarantee, and well deserves for the work its immense circulation.—*Era.*

Manhood: a medical work.—To the gay and thoughtless we trust this little work will serve as a beacon to warn them of the danger attendant upon the too rash indulgence of their passions—whilst to some it may serve as a monitor in the hour of temptation, and to the afflicted as a sure guide to health.—*Chronicle.*

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